



ANNENBERG RESEARCH NETWORK ON INTERNATIONAL COMMUNICATION

The Mobile Communication Society

**A cross-cultural analysis of available evidence on the social
uses of wireless communication technology**

Manuel Castells

Annenberg Research Network on International Communication
University of Southern California

Mireia Fernandez-Ardevol

Internet Interdisciplinary Institute
Open University of Catalonia

Jack Linchuan Qiu

Chinese University of Hong Kong
and Annenberg Research Network on International Communication
University of Southern California

Araba Sey

Annenberg Research Network on International Communication
University of Southern California

**The Mobile Communication Society:
A cross-cultural analysis of available evidence on the social uses of wireless
communication technology**

Manuel Castells (USC), Mireia Fernandez-Ardevol (UOC), Jock Linchuan Qiu (USC),
and Araba Sey (USC)

Abstract

This research report offers an analytical overview of existing research on the social uses of wireless communication technology. It seeks to provide a solid empirical basis for an informed discussion of the social uses and social effects of wireless in Europe, the Asian Pacific and the United States. Major themes explored include the deep connection between wireless communication and the emergence of youth culture, the transformation of language by texting and multimodality, the growing importance of wireless communication in socio-political mobilization, and changes in the practice of time and space resulting from wireless communication.

The authors wish to acknowledge the support of the Annenberg Foundation and of the Annenberg School for Communication for the preparation of this report.

TABLE OF CONTENTS

Introduction.....	1
Section 1 Comparative Statistical Overview of Diffusion.....	4
1.1 Global Diffusion of Mobile Telephony	5
1.2. Regional Diffusion of Mobile Telephones	6
1.3. Diffusion of Wireless Telephones in selected Areas and countries.....	13
1.3.1. Mobile Telephony in the European Union.....	13
1.3.2. Mobile Telephony in the Asian Pacific	15
1.3.3. Mobile Telephony in the U.S.....	21
1.4. Wireless Communication in Europe, Asia and the U.S. – Comparative Analysis	23
1.4.1. Mobile Telephony	23
1.4.2. Wireless Internet	29
1.4.3. Wi-Fi	32
1.4.4. Wireless Messaging	33
1.5. Factors Accounting for Differences in Penetration Rates of Wireless Communication Technology	34
1.5.1. Economic factors	35
1.5.2. Geographic factors	35
1.5.3. Industry factors	36
1.5.4. Government policy.....	37
1.5.5. Socio-cultural factors	37
1.6. Summary	38
Section 2 Social Differentiation of Wireless Communication Users by Age, Gender, and Socio- Economic Status in a Cross-Cultural Perspective.....	40
2.1. Age.....	41
2.2. Gender.....	49
2.3. Socio-Economic Status	55
2.4. Summary	60
Section 3 Analysis of Social Uses by Areas and Countries.....	62
3.1. Europe	63
3.1.1. The High Popularity of Mobile Telephony.....	63
3.1.2. Uses in Everyday Life.....	66
3.1.3. The Early Mobile Society in Europe: A Retrospective Perspective	78
3.1.4. Summary: Europe	82
3.2. The United States.....	84
3.2.1. Pagers.....	85
3.2.2. Wireless Phone.....	86
3.2.3. Wireless Data	88
3.2.4. SMS	89
3.2.5. Characteristics of the US Wireless Communication Environment.....	91

3.2.5a	Corporate vs. Consumer Market.....	91
3.2.5b	“Phone, No; Wi-Fi, Yes” – The spread of Wi-Fi in the U.S.....	93
3.2.6.	Integration of Wireless Communication into Everyday Life.....	95
3.2.6a.	Growing attachment to wireless devices.....	95
3.2.6b.	Cultural concerns	96
3.2.7.	Impact of 9/11	98
3.2.8.	Summary: The United States	101
3.3.	The Asian Pacific.....	103
3.3.1.	Japan	103
3.3.1a.	Why Mobile Internet?.....	103
3.3.1b.	Connectivity, Sociability and <i>Keitai</i>	105
3.3.1c.	Consumerism, Identity, and Sexuality	108
3.3.1d.	Gender and the Culture of <i>Kawaii</i>	110
3.1.1e.	The Formation of Social Norms	111
3.1.1f.	Summary for Japan	114
3.3.2.	South Korea	117
3.3.2a.	Structural Dimensions of the Mobile Culture.....	117
3.3.2b.	Personal Uses.....	118
3.3.2c.	Professional Uses.....	120
3.3.2d.	Summary for South Korea	122
3.3.3.	The Philippines	124
3.3.3a.	Manila’s Mobile Mania.....	124
3.3.3b.	Generation Txt	126
3.3.4.	China.....	129
3.3.4a.	State-Sponsored Consumerism	129
3.3.4b.	<i>Shouji</i> , the Blockbuster	133
3.3.4c.	Mobile Usage Among Migrants.....	137
3.3.4d.	The Success of Little Smart	140
3.3.4e.	Summary for China.....	150
3.3.5.	Summary: The Asian Pacific	152
Section 4	The Mobile Youth Culture in Cross-Cultural Perspective.....	153
4.1.	Youth in Europe.....	155
4.1.1.	Youth Culture in the Network Society.....	157
4.1.2.	Cultural Dimensions of the Mobile Youth Society.....	160
4.1.2a.	The management of autonomy vis-à-vis security	160
4.1.2b.	The construction of a peer group through networked sociability	163
4.1.2c.	The emergence of collective identity	166
4.1.2d.	Strengthening of individual identity and the formation of fashion.....	169
4.1.2e.	Projects of autonomy as principle of orientation for people.....	170
4.2.	Youth in the United States	171
4.2.1.	Independence	174
4.2.2.	Community and Connectivity.....	177

4.2.3.	Personal Identity	178
4.2.4.	Entertainment.....	179
4.3.	Youth in the Asian Pacific	180
4.3.1.	Youth in Japan	181
4.3.2.	Youth in South Korea	185
4.3.3.	Youth in the Philippines.....	188
4.3.4.	Youth in China.....	190
4.4.	Summary	193
Section 5	Wireless Communication and Socio-Political Mobilization: Case Studies	196
5.1.	People Power II in the Philippines.....	197
5.2.	Wireless Communication and the “People who Love Roh” in South Korea.....	206
5.3.	Terrorism, Political Manipulation, Political Protest, and Political Change: Spain, March 2004	211
5.4.	The Mobil-ization around the Republican National Convention in New York.....	215
5.5.	Notes on China and Japan.....	220
5.6.	Summary	222
Section 6	The Language of Wireless Communication	225
Section 7	Space and Time in the Mobile Communication Society	231
Section 8	Making Sense of Observation.....	237
8.1.	Autonomy	239
8.2.	Networks of Choice	240
8.3.	Instant Communities of Practice.....	240
8.4.	The Blurring of the Social Context of Individual Practice	241
8.5.	Access to the Wireless Network as Source of Personal Value	242
8.6.	Users are Producers of Content and Services	244
8.7.	Consumerism, Fashion, Instrumentality, and Meaning	245
8.8.	The Transformation of Language	246
8.9.	Is The Mobile Communication Society Culturally And Institutionally Diverse?	247
8.10.	The Mobile Communication Society	248

REFERENCES AND STATISTICAL SOURCES	250
Section 1: Comparative Statistical Overview of Diffusion.....	251
Section 1: Statistical Sources	254
Section 2: Social Differentiation of Wireless Communication Users.....	255
Section 2: Statistical Sources	260
Section 3: Analysis of Social Uses by Areas and Countries.....	261
Europe:.....	261
The United States:.....	264
The Asian Pacific:.....	271
Section 3: Statistical Sources	275
Section 4: The Mobile Youth Culture in Cross-Cultural Perspective.....	276
Section 5: Wireless Communication and Socio-Political Mobilization.....	286
The Philippines	286
South Korea	287
Spain	290
The United States.....	290
China and Japan	292
Section 6: The Language of Wireless Communication	292
Section 7: Space and Time in the Mobile Communication Society	294
APPENDICES	296
Appendix 1 Mobile Phone Penetration Rates in Africa (%) – July 2004.....	297
Appendix 2 Source Data for Figures	298
Appendix 3. Mobile Penetration Per Total Inhabitants And Degree Of Urban Concentration, Latin America (2001)	302
Appendix 4 Mobile Telephone Subscribers, per 100 Inhabitants Detailed country ranking, 2003	303
Appendix 5 Growth in total teledensity (fixed and mobile combined) among different developing regions (1993-2000)	305
Appendix 6. Selected events in the history of wireless technologies in China.....	306
Appendix 7. A Timeline for the Development of UTStarcom.....	307
Appendix 8. Timeline: President Roh Moo-Hyun and the Nosamo movement.....	309
Appendix 9 SMS language around Europe. Some examples of “shortis”.....	310
Appendix 10 SMS language in the United States.....	321

INTRODUCTION

Wireless communication technology is diffusing around the planet faster than any other communication technology to date. Because communication is at the heart of human activity in all domains, the advent of this technology, allowing multimodal communication from anywhere to anywhere where there is the appropriate infrastructure, is supposed to have profound social effects. Yet, which kind of effects, under which conditions, for whom and for what is an open question. Indeed, we know from the history of technology, including the history of the Internet, that people and organizations end up using the technology for purposes very different of those initially sought or conceived by the designers of the technology. Furthermore, the more a technology is interactive, and the more it is likely that the users become the producers of the technology in its actual practice. Therefore, rather than projecting dreams and fears on the kind of society that will result in the future from the widespread use of wireless communication, we must root ourselves in the observation of the present using the traditional, standard tools of scholarly research. People, institutions, and business have suffered enough from the unwarranted prophecies of futurologists and visionaries that project and promise whatever comes to their minds on the basis of anecdotal observation and ill understood developments. Thus, our aim in this report is to ground an informed discussion of the social uses and social effects of wireless communication technology on what we know currently (2004) in different areas of the world. We would have like to consider exclusively information and analyses produced within the rigorous standards of academic research. This constitutes a good proportion of the material examined here. However, because of the novelty of the phenomenon and the slow motion of traditional academic research to uncover new fields of inquiry, the stock of contrasted knowledge on this subject is too limited to grasp empirically the emerging trends that are transforming communicative practices. Thus, we have extended our data sources to reliable media reports and to statistics and elaboration coming from government institutions and consulting firms. We have made every possible effort to assess the validity of the sources employed and make clear their limits in the report. Thus, most of what we write here must be considered tentative and exploratory. On the other hand, when a pattern of conduct (eg. the substantial enhancement of individual and collective autonomy by wireless communication capability) repeats itself in several studies from several contexts, we consider plausible that the observation properly reflects the new realm of social practice.

The aim of our inquiry is global. Yet, there are limits in the information available in many contexts, as well as our own language limits, in spite of the multicultural character of this research team and the help we have received from assistants and colleagues in other languages, such as Japanese. Thus, the first statistical section does provide a global overview of the diffusion of wireless communication. But the analytical sections do not consider areas from which we have not been able to collect reliable information, particularly Latin America and Africa. In this report we feel reasonably convinced to have covered current trends in Europe, the United States, and the Asian Pacific. We hope to proceed with a broader inquiry in the future. However, our aim is primarily analytical, not encyclopedic. Among other things, because the diffusion of wireless communication proceeds so fast that purely descriptive data become rapidly obsolete. Our emphasis on a cross-cultural approach comes essentially from our intention to avoid cultural ethnocentrism in building the argument. Also we have concentrated on the three areas of the world where wireless communication is most developed (save Australia), while presenting quite different patterns of diffusion, eg. the United States lags behind Europe and Japan, and Japan is ahead of Europe in the uses of wireless Internet. Therefore, by looking with some depth at these areas we think it is possible to construct an analytical framework on a culturally and institutionally diverse body of observation, that could be adapted to other areas of the world when information becomes available.

Unfortunately, our report does not cover all the topics and issues that we could think of as being intellectually interesting and socially relevant. Our basic limitation is that we cannot report on what has not been studied. And we adamantly refuse to speculate without a minimum level of reliable evidence. Not having been able at this point to generate original data by ourselves, we are dependent on the work of other researchers. So, some questions that in our view are critical (eg. the transformation of the work process and of the work place by wireless communication) have been barely touched upon by research, and this is reflected in our analysis. Furthermore, the broad diffusion of wireless communication is a very recent phenomenon, so the actual practice that can be observed is still scant in many domains. We believe, nonetheless, that assessing empirically and analytically the emergence of wireless communication patterns at an early stage of development of the new communication system, will help to build a cumulative body of knowledge that will evolve with the technology itself. Besides, these early studies, and our assessment of them, may have some social usefulness as business, public services, and policy makers adapt their communication technology strategies to the demands from society.

The structure of the research report presented here is straightforward. We start with a statistical overview of diffusion of wireless communication in the last decade in different areas and countries of the world. Afterwards we provide the aggregate data on patterns of social differentiation in the diffusion of the technology. Then we present an analysis of the social uses and social effects of wireless communication in different domains of human activity, differentiating our synthesis of evidence in the three areas of our study: Europe, the Asian Pacific and the United States. We then enter into the specific consideration of some major themes that have appeared as clearly essential in the course of our research. The first one is the deep connection between wireless communication and the emergence of a youth culture (that leads to what we call a mobile youth culture) in all areas under our observation. The second is the process of transformation of language by texting and multimodality. The third, is the growing importance of wireless communication in the processes of socio-political mobilization, particularly outside formal politics, a topic that we have considered by focusing on case studies of mobilization in a variety of contexts. The fourth theme, on which we have only limited information but seems to be worth of exploring refers to the changes in the practice of time and space resulting from wireless communication. Finally, we have attempted to summarize the main trends resulting from our observation in a concluding section that, deliberately, raises more questions than it answers. We have placed in the appendices to our report the references to sources, documents, and statistics on which our analysis is based. We have also indicated in the text throughout the report the specific sources that support our statements. Altogether, we hope that this research effort, within its obvious limitations, will contribute to set a tone for the future analysis and assessment of a fundamental trend that is redefining the relationship between communication, technology, and society around the world.

SECTION 1

COMPARATIVE STATISTICAL OVERVIEW OF DIFFUSION

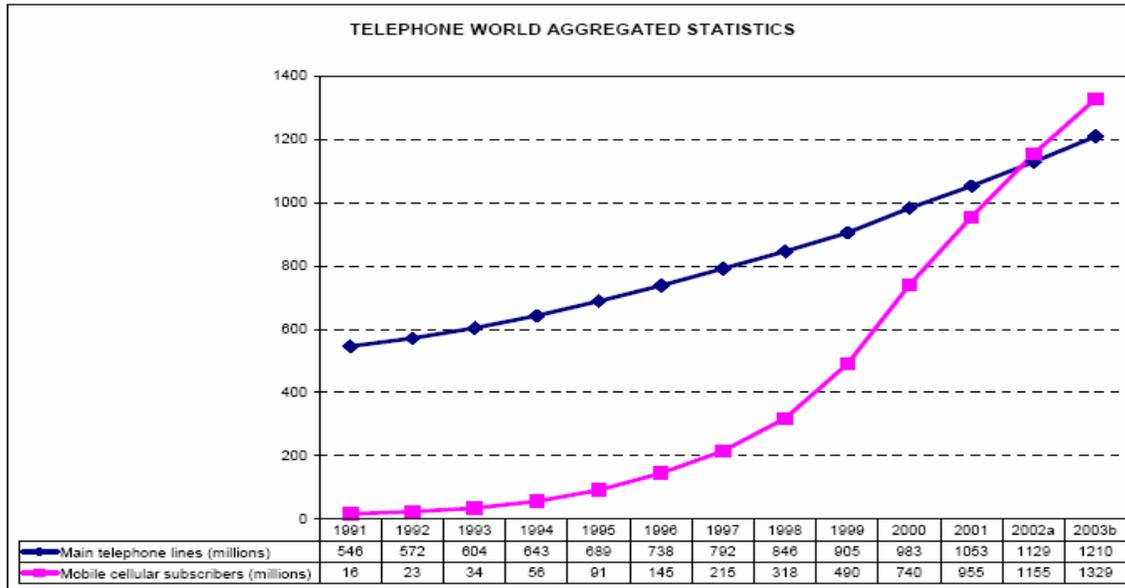
This section presents an assessment of wireless communication growth in the world with an emphasis on Europe, Asia/Pacific and the U.S. We begin with the most pervasive technology, the mobile phone, and include later other forms of wireless technology, in as much as comparative data are available. An important footnote to this analysis is that a wide variety of official and unofficial sources have been used to derive a picture of wireless communications around the world. Some of the trends we discuss here are emerging trends and as such there are few official or academic sources of data. Another point to note is that research and analysis of wireless communication has been more prevalent in some regions and countries than in others (perhaps in tune with the level and nature of adoption). Therefore we have very rich data on some countries (e.g. in Europe and the Asian Pacific) and rather limited data on others (e.g. China and the U.S.). To supplement the limited official and scholarly work, we have relied on secondary sources, such as newspaper reports and press releases. Nevertheless these reported surveys have been conducted by recognized professional research institutions and therefore can be considered fairly reliable. Notwithstanding these limitations, the data do give us some idea what is known in the public sphere about wireless communication diffusion in the different societies examined.

1.1 GLOBAL DIFFUSION OF MOBILE TELEPHONY

As can be seen from Figure 1, mobile telephony really began to take off worldwide in the mid-1990s, when the ratio of mobile to mainline phones went up from about 1:34 (1991), to about 1:8 (1995). By 2000, there was one mobile phone to less than two mainlines, and by 2003 mobile phone subscriptions had overtaken mainline subscriptions for the first time. Thus, within the span of about 10 years mobile telephony has moved from being the technology for a privileged few, to essentially a mainstream technology. Both mobile and fixed telephone subscriptions have continued to rise, effectively doubling the number of lines available worldwide. This indicates that mobile phones have not yet become perfect substitutes for wired phones, but rather act as a complement to the traditional system in most countries. Nevertheless, the rise in mobile phone diffusion is dramatic, as mainline rates of growth have slowed, even as mobile rates climb. Indeed in some countries, primarily developing countries, mobile phones are serving as a technological substitute for fixed lines, and to

an increasing extent, certain classes of people in developed countries are also substituting mobile phones but for economic reasons, rather than because of low fixed line availability.¹

Figure 1: Key Global Telecom Indicators for the World Telecommunication Service Sector



(a) Estimation. (b) Forecast

Source: ITU, 2003. http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom99.html

1.2. REGIONAL DIFFUSION OF MOBILE TELEPHONES

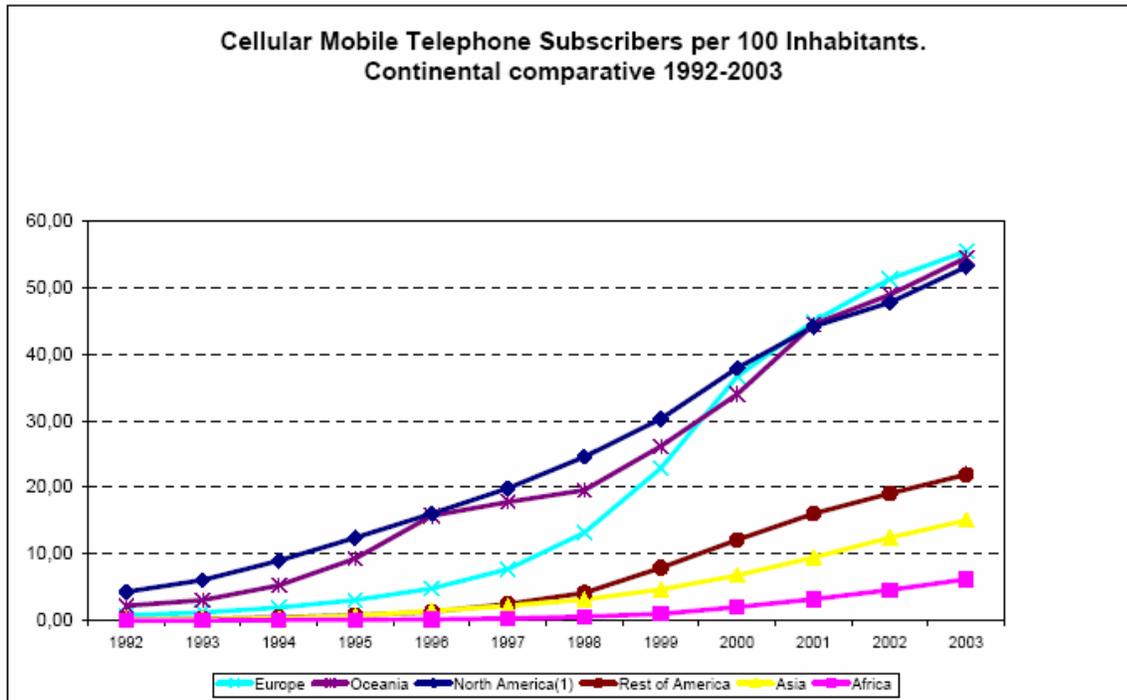
Of course, the pattern of growth illustrated in Figure 1 has not occurred uniformly around the world. Looking at the regional penetration rates of mobile telephony (Figure 2), it is clear that mobile telephony has diffused at very different rates in the various world regions. Currently (2003), Europe leads (55.4%), followed by Oceania (54.4%) and North America (53%). These three regions each have more than one mobile telephone subscriber per two persons. They are followed distantly by Rest of the American continent (21.9%), Asia (15%) and Africa (6%), all of which have less than half the penetration rates of the top three regions. This observation is significant for our purposes since we

¹ See Banerjee and Ros (2004), and Ling (2004) for a concise discussion of global patterns in fixed and mobile telephony.

are analyzing wireless communication from three of these regions. The three areas we are interested in are Europe, the Asian Pacific and North America.

Figure 2 shows extremely high penetration rates for Europe and North America. Asia has fairly low rates in comparison, which is not surprising when one takes into account the differences in population size. In terms of growth over time, there are some striking observations. First, North America had the highest penetration figures in 1992, surpassing its closest competitor (Oceania) by almost double. Yet by 2001, Europe, which was originally in third place, had taken over leading position. As we shall demonstrate in subsequent sections, this shift in the trend can be attributed to the spillover effects from the four Nordic European countries that propelled Europe into the forefront of wireless communication technology usage. Europe, as Figure 2 illustrates, has followed most closely the classic S-shaped diffusion curve for mobile adoption, while North America and Asia have relatively more gentle trends. At this point, a second observation that stands out is the growth spurt experienced in Europe between 1997 and 2000. This was clearly a significant period when critical mass was reached. Such dramatic growth rates are not observed in the other two regions under consideration, although they may be seen in individual countries. This can also be contrasted with the trend for Africa, which is clearly still in the very early stages of adoption, with a penetration rate almost 10 times lower than that of Europe in 2003 (see also Appendix 1).

Figure 2. Cellular Mobile Telephone Subscribers, per 100 Inhabitants (1992-2003)



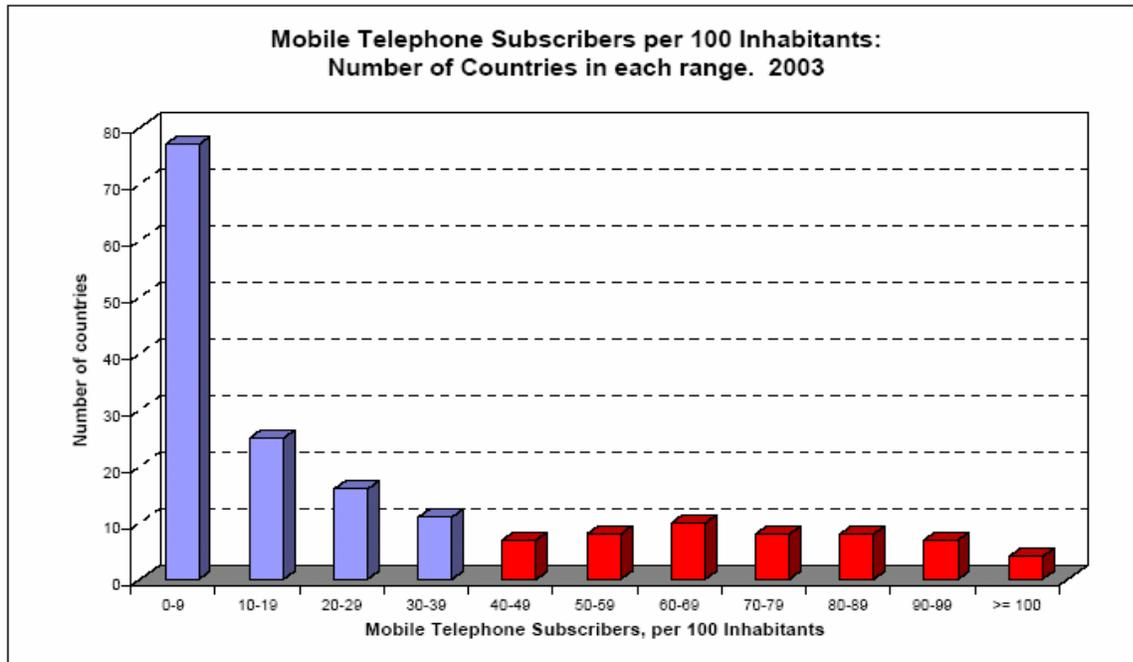
(1) North America: Canada + United States

Note: In the original, some figures referred to 2002.

Source: ITU World Telecommunication Indicators Database. Chart data in Appendix 2A

Further evidence of the uneven global diffusion of mobile telephony can be seen in Figure 3, which shows the number of countries with various levels of diffusion. While wireless phone subscriptions have grown in most countries, only 8 countries have penetration rates greater than 80%. A majority (42.5%) of them have penetration rates below 10%, and more than half of the countries have rates below 20%. The relatively low levels of mobile market penetration in most countries may be related to poor national telecommunications systems and, also, asymmetrical diffusion of mobile telephony mainly to urban areas. However, there is also evidence that this is not always the case. Taking Latin America, for example, there is a trend of higher wireless penetration associated with more urbanized countries in the region (see Appendix 3), but the countries with the highest urbanization levels do not have the highest mobile penetration rates. Uruguay and Argentina are the most urbanized but have the eighth and sixth highest mobile penetration respectively.

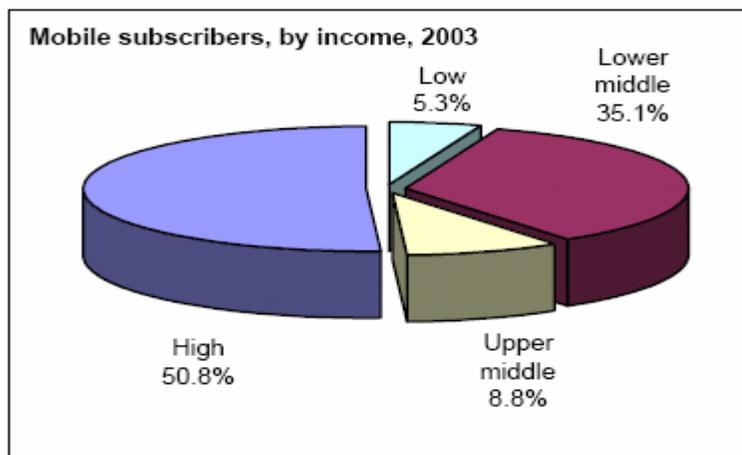
Figure 3. Mobile Telephone Subscribers, per 100 Inhabitants, Country Ranking (2003)



Source: The authors, based on ITU. Chart data in Appendix 2B

The economic status of a country certainly has an impact on the speed and reach of mobile phone subscriptions. More than half of mobile subscribers worldwide are in the high-income group (Figure 4).

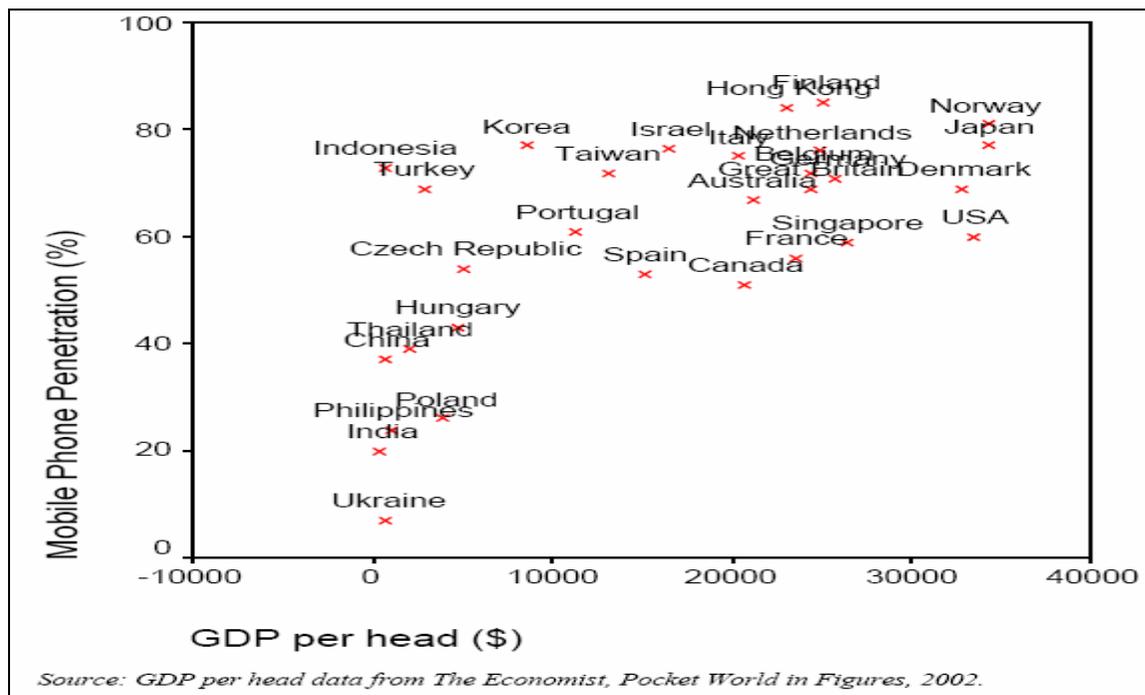
Figure 4. Mobile subscribers by income, 2003 (worldwide)



Source: ITU (2004, p. A-13). ITU Internet Reports 2004: The Portable Internet.

To explore this further we look at the relationship between mobile phone penetration and GDP (see Figure 5), which confirms that generally, mobile phone penetration rises with GDP. GDP alone, however, does not explain mobile phone subscription levels, as we shall see in subsequent sections on international differences. We have already noted, for example, the observation of Banerjee & Ros² that there are different underlying reasons for the adoption of wireless technology in different countries and regions. While GDP levels explain about half of the variance in mobile telephony penetration rates, examination of national trends indicate that beyond economic indicators, there are other factors such as culture and government policy, that may influence the rate of wireless technology penetration.³

Figure 5. Scatter Chart: Mobile Phone Penetration vs. GDP per Head



Reproduced from Taylor Nelson Sofres (TNS) (2002, p.7). *Wireless and Internet Technology Adoption by Consumers Around the World*. Accessed March 2004 at www.tns-global.com.

² Ibid.

³ TNS (2002).

Furthermore, as the detailed ranking of countries in Appendix 4 shows, the global diffusion of mobile phones reflects the traditional digital divide between wealthy and poor countries, as most of the countries in the low range of diffusion are poorer developing countries (although, according to Kelly, Minges and Gray⁴, the telephone divide is smaller than the Internet divide). In this respect, it has become obvious that the characteristics of wireless telephony such as relatively lower cost and the availability of prepaid pricing systems has made it possible for the telephone divide to be narrowed more rapidly than the Internet divide. For example, in Latin America, where mobile penetration rates range from 0.2 (Cuba) to 46.7 (Puerto Rico), the prepaid system is a dominant characteristic of the market (Table 1), making up almost 100% of subscriptions in some countries such as Panama (96.41%) and Mexico (92.26%).

Table 1. Percentage of Prepaid Mobile Telephones, Latin America 2002

% of Prepaid Mobile telephones. Latin America. 2002	
Country	2002
Panamá	96.41
México	92.26
Venezuela	91.62
Bolivia (2001)	86.51
Nicaragua	85.89
Ecuador	81.51
Paraguay (2001)	80.00
Honduras	79.37
Chile	77.85
Brasil (2003)	76.20
Perú	76.16

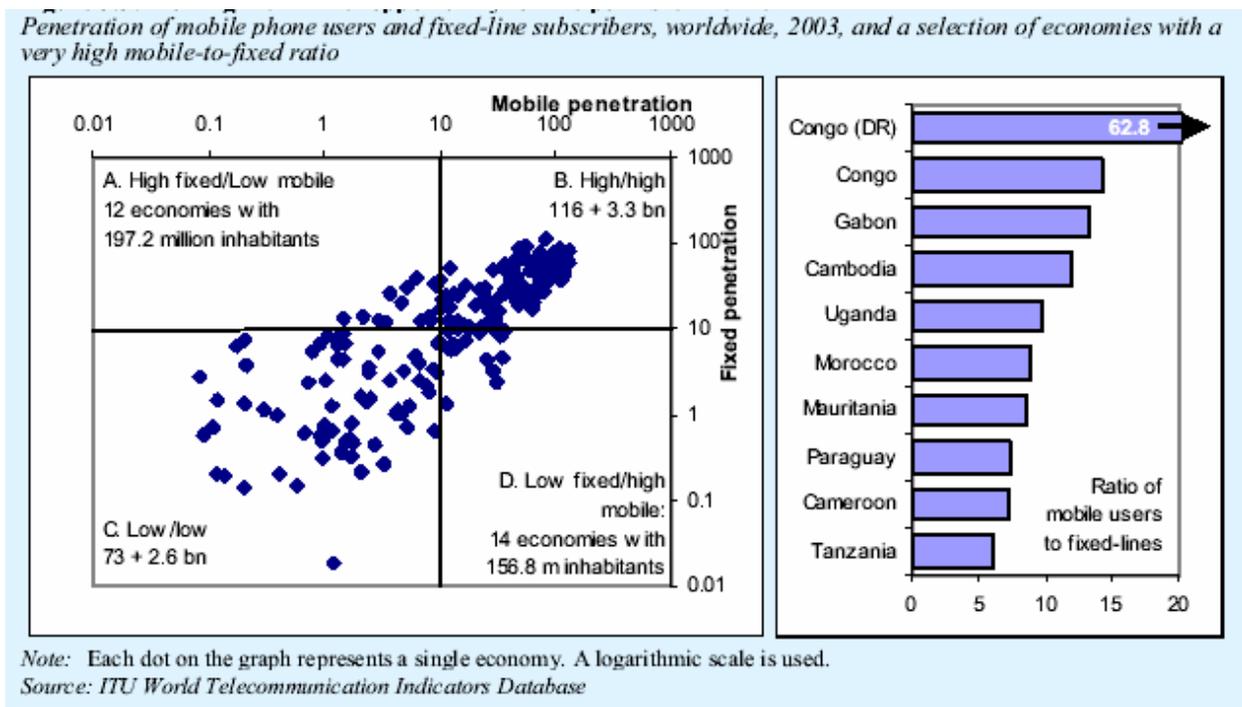
Source: OSILAC, from ITU. Courtesy of Martin Hilbert

ITU's analysis of the global dispersion of fixed and mobile telephone lines shows that while most countries now have more mobile than fixed lines, developed and newly industrialized countries have high levels of both mobile and fixed lines – that is, more than 10 fixed and 10 mobile lines per 100

⁴ 2002.

inhabitants (quadrant B in Figure 6).⁵ Most developing countries are in quadrant C with less than 10 fixed and 10 mobile lines per 100 inhabitants; and a mix of Latin American, Asian-Pacific and a few African countries are in quadrant D with less than 10 fixed and more than 10 mobile lines per 100 inhabitant. Finally, there are still a few countries, mainly from the former Soviet Union and the Middle East, with more fixed than mobile lines (quadrant A).

Figure 6: Penetration of Mobile and Fixed Lines worldwide (2003)



Source: ITU (2004, p.38). ITU Internet Reports 2004: The Portable Internet.

Clearly, while mobile telephony enables developing countries to do some leapfrogging of communication technologies, they still lag in overall uptake, compared to more developed countries and diffusion is occurring faster in some developing economies than in others (See Appendix 5 for a comparison of total teledensity growth in developing economies).

⁵ ITU (2004).

1.3. DIFFUSION OF WIRELESS TELEPHONES IN SELECTED AREAS AND COUNTRIES

We have observed so far that globally there has been an explosion of wireless telephony, but that wealthier regions have higher penetration rates. However, even within the wealthier economies there are differential rates of diffusion. How do our three regions of interest specifically compare to each other? At this point, we first present an overview of mobile telephony in each area, then we compare the situation in a number of countries in Europe (mainly EU countries with an emphasis on Scandinavia), the Asian Pacific (China, Japan, Philippines and Korea), and North America (United States).

1.3.1. Mobile Telephony in the European Union

Although mobile phone technology was created in the U.S., it was developed in the Scandinavian countries. Nordic countries worked together in the establishment of an European standard normative, GSM, which is, indeed, one of the factors that helped the diffusion of mobile telephony in the continent (Figure 7). The GSM standard was assumed by all the EU members, meaning that the same standards had been imposed in the richer part of the continent (Agar, 2003). Besides this policy, the payment system also helped this development as the Calling-Party-Pays system has been shown to be the best system to favor the growth of the mobile telephony use.

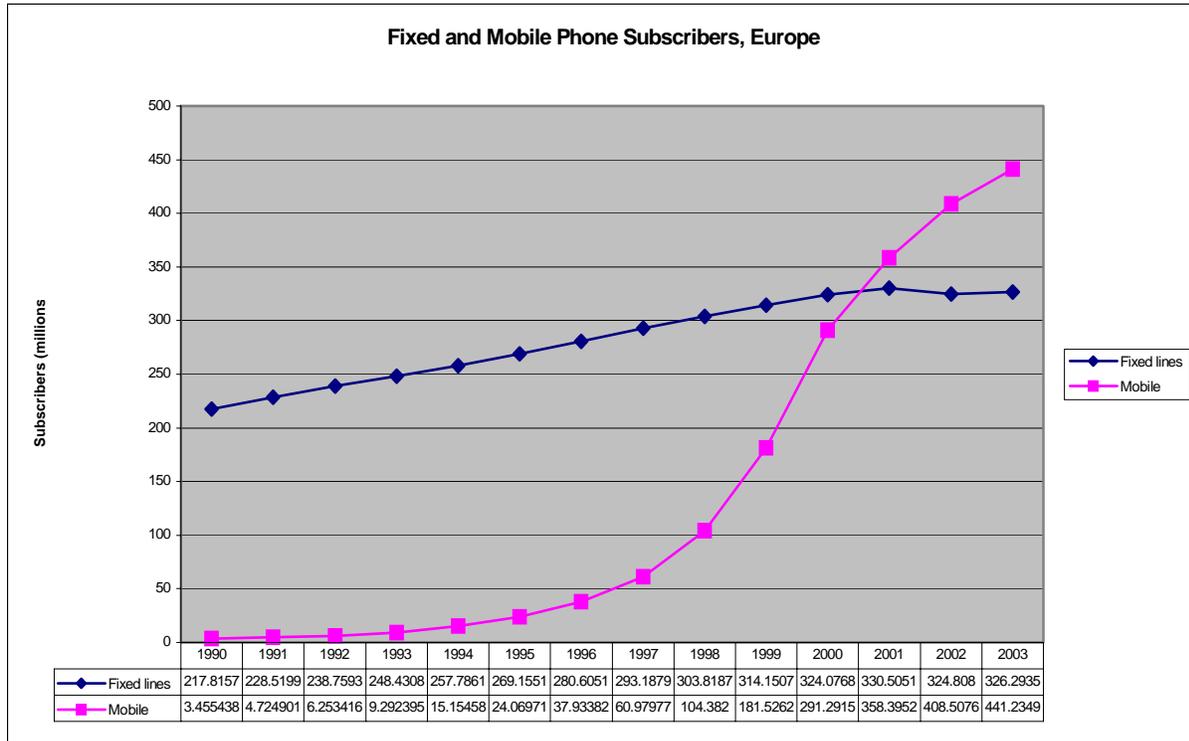


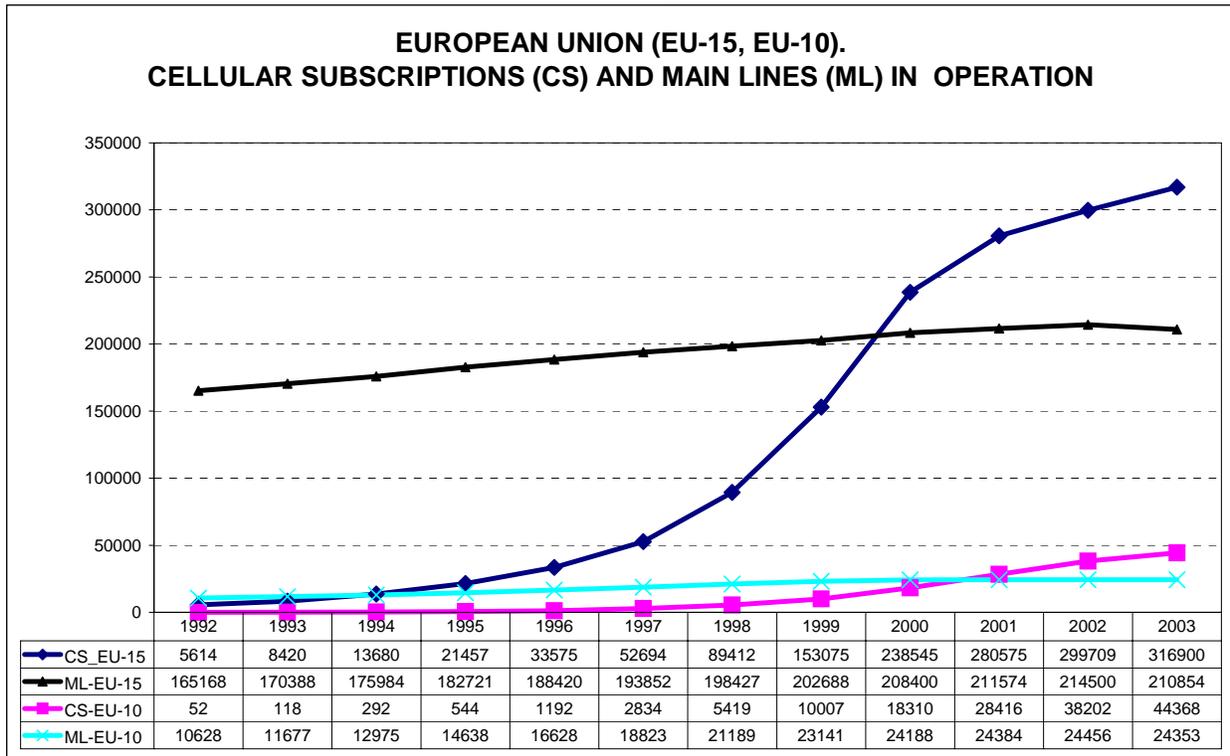
Figure 7. Fixed and Mobile Phone Subscribers in Europe (1990-2002)

Source: ITU World Telecommunication Indicators Database.

At this stage, we focus on the evolution of the mobile phone phenomenon in the European Union as a particular case of the whole continent. We consider the EU-25, which is the current Union, but make a distinction between the ten new members of the 2004 enlargement (identified as EU-10) and the former members (identified as EU-15). This distinction is of the most interest because of the socio-economical differentiation of these two groups of countries. Figure 8 shows the evolution of the total number of mobile subscriptions in EU-15 and EU-10 and the total number of fixed line subscriptions for each group of countries. We can see that in 2000 the number of mobile subscriptions surpassed the fixed ones in EU-15, while this situation did not happen in the EU-10 until the next year. So, despite the great difference in the actual figures, there is a parallel phenomenon in both groups of countries where, in fact, the growth of mobile telephone subscriptions has been very high in both cases, and more acute from 1996 onwards.

The European market, as can be seen, is experiencing different speeds in the development of mobile communications. In this sense, it can be deduced that the trends that can currently be observed in the leader European countries should be taken into account when studying the evolution of those countries that are few steps behind.

FIGURE 8: EU Cellular Main Line and Mobile Telephone Subscribers



Source: ITU World Telecommunication Indicators Database.

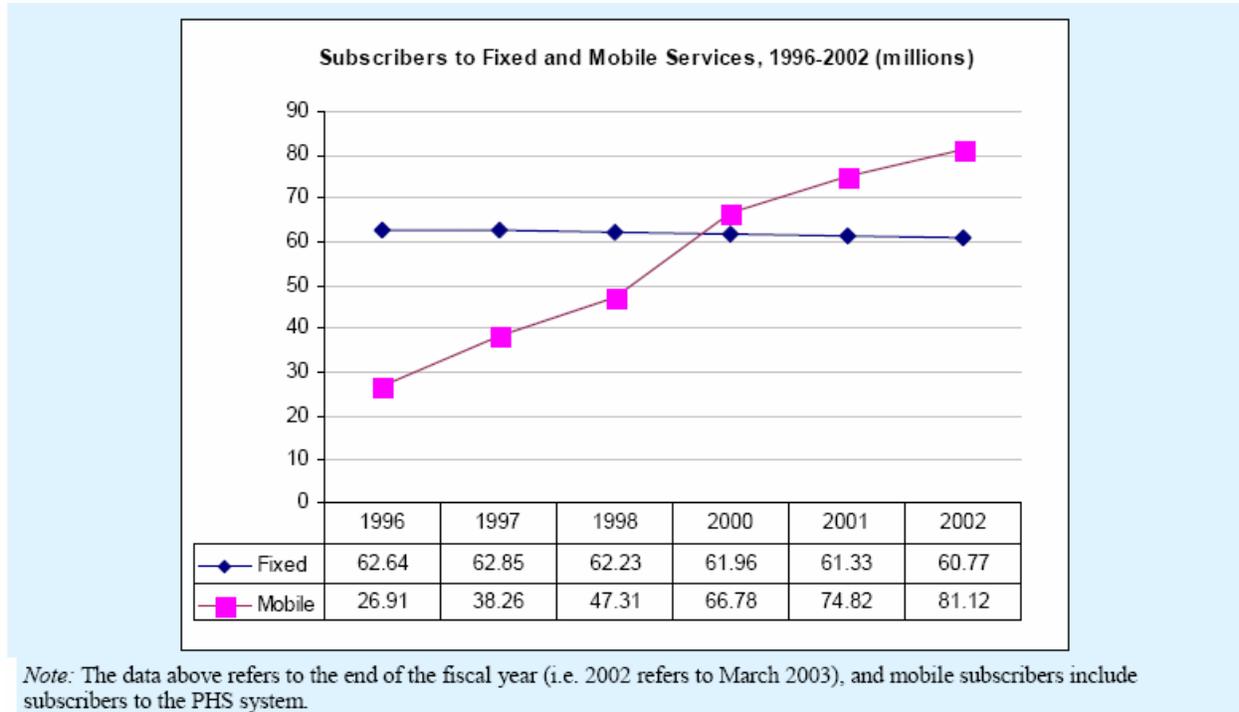
1.3.2. Mobile Telephony in the Asian Pacific

1.3.2a Japan

The past decade witnesses a major growth of wireless communication in Japan. According to *Japan Statistics Yearbook*, the national penetration of mobile phone has grown from 21.3 subscribers per hundred populations in 1993 to 81.5 subscribers per hundred populations in 2003. Such growth is

achieved when subscription to fixed-line telephone remained stagnant or even slightly declined as shown in Figure 9, in part because fixed-line service is relatively expensive in Japan.⁶

Figure 9. Fixed and Mobile Phone Subscriptions in Japan

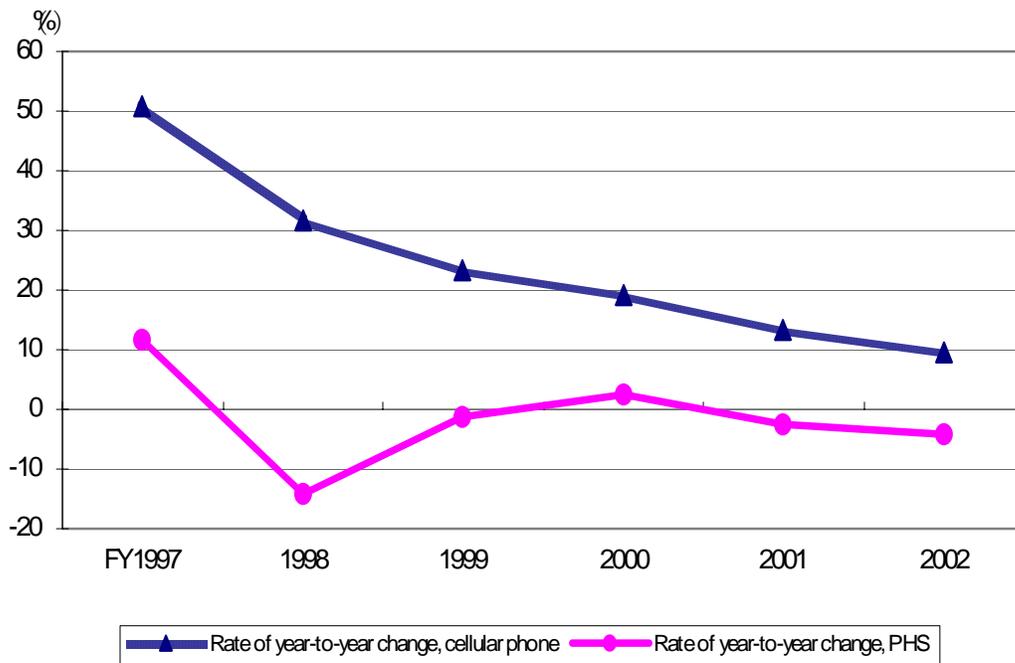


Source: Srivastava (2004, p.13). *Shaping The Future Mobile Information Society: The Case Of Japan*. ITU/MIC Workshop On Shaping The Future Mobile Information Society, Seoul, 4-5 March 2004. Document: SMIS/06 <http://www.itu.int>

The growth of mobile services, however, has been slowing down for both cellular phone and personal handyphone system (or PHS, a less expensive but limited mobile service). According to the Ministry of Public Management, Home Affairs, Post and Telecommunications (MPHPT), the year-to-year change in terms of cell phone penetration was 51% growth in 1997, it slowed down to 23.1% in 1999, and then to 9.5% in 2002 (see Figure 10). This trend is more obvious in the PHS market. While household possession rate of PHS rose quickly from 0.3% in 1995 to 13.1% in 1998, it dropped to 9.1% in 2001 (MPHPT, Information and Communications Policy Bureau). Meanwhile, the total number of PHS subscription declined from the high point of 6.7 million in 1997 to 5.5 million in 2002 (MPHPT, Telecommunications Bureau).

⁶ Ito (2004).

Figure 10. Growth rate of subscribers of cellular phones and personal handyphone systems (PHS)



Source: Telecommunications Bureau, MPHPT, *Mobile Telecommunications Subscribers* [17]

1.3.2b Korea

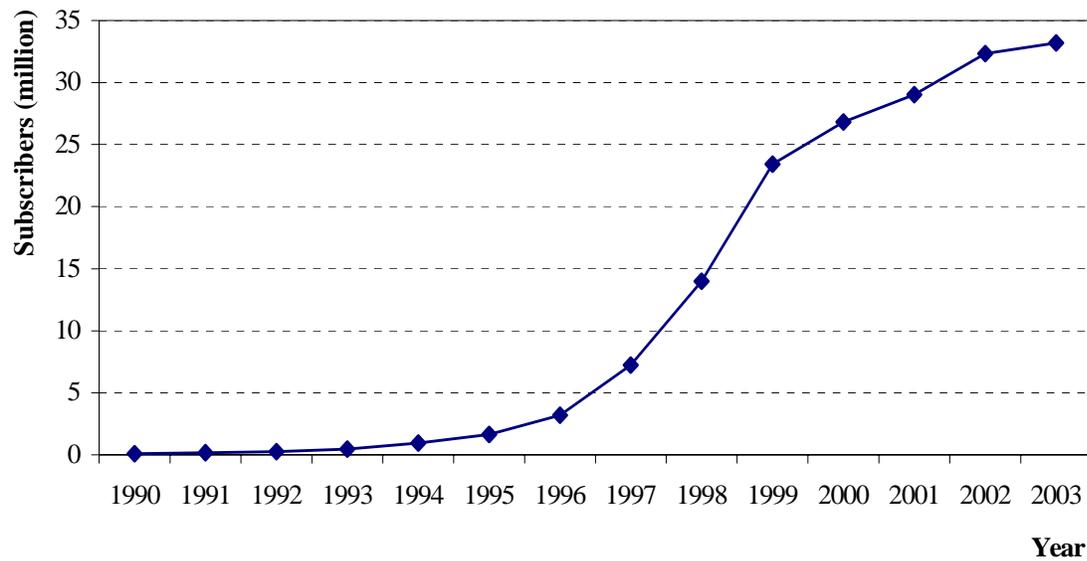
South Korea is an important actor in the wireless market. Home to the world's first commercial CDMA service since January 1996, the country has been playing a major role in handset R&D, manufacture, and the launching of new mobile services. New wireless technologies are spreading as a result of the Korean government's "u-Korea (or ubiquitous Korea)" project.⁷ As of November 2003, 78% of Koreans above the age 15 subscribed to mobile phone services.⁸ This is surprisingly high given that about 70% of Korean households were already equipped with broadband Internet connection.⁹ According to Korea National Statistical Office, the total mobile subscriber population was 33.2 million by the end of 2003 (Figure 11).

⁷ Yang (2003); "Information Ministry plans 'Ubiquitous Korea' by 2007," *Korea Times*.

⁸ KISDI Report (2003, p. 24).

⁹ MIC Report (2003, p. 3).

Figure 11: The total number of mobile phone subscribers in South Korea (millions), 1990-2003



Source: Korea National Statistical Office

Despite market liberalization, the Korean government remains a central player in the mobile industry. In order to establish the nation's IT leadership, the Korean government chose mobile telecommunications as a key strategic industry that needs systematic internal capacity-building, which will in turn contribute to future export and competitiveness in the global IT market.¹⁰ Since then, a series of special policies ranging from handset subsidy to preferential regulation have been implemented.¹¹ In December 1994, the Ministry of Post and Telecommunications (MPT) was expanded in size and administrative function to become the Ministry of Information and Communication (MIC). Since then, under the auspices of the state, Korean mobile providers have played a leading role in the world in launching new services, testing out different standards (e.g., w-CDMA and CDMA2000),¹² and the experimentation of 3G services (e.g., IMT-2000).¹³ Most of these new transformations occurred during or after the Asian Financial Crisis of late 1990s, which expedited the restructuring of Korean economy while further enhancing the role of the state.¹⁴

¹⁰ Yang, Yoo, Lyytinen, and Ahn, (2003).

¹¹ See Lee, Park, and Oh (2000); Kim, D.-Y. (2002); Kim, Byun, and Park (2004).

¹² MIC Report (2003, p. 20).

¹³ Park and Chang (2004).

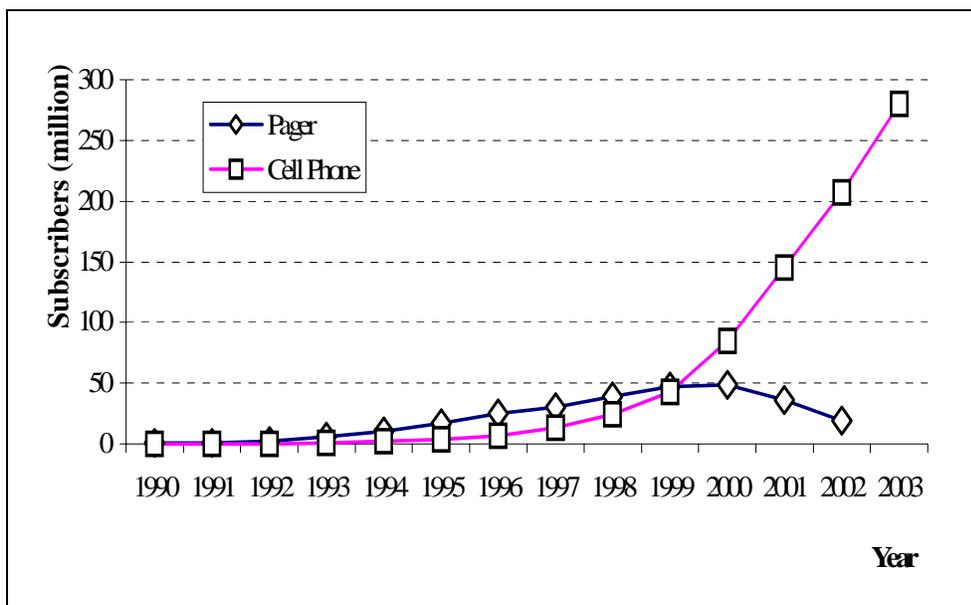
¹⁴ Chang, S.-J. (2003).

1.5.2c China

Modern wireless technologies started in the 1980s in China with the introduction of the pager in 1984 and cellular phones in 1987. While initial adoption was slow and restricted to a very small circle of high-end business users, the speed of growth has been extraordinary since 1990. As shown in Figure 9, pager subscription took off throughout the 1990s to peak with 49 million users in 2000. It then started to decline, becoming a technology used largely by migrant workers.¹⁵ The change happened at the same time as cell phone penetration started to surge strongly (Figure 12) together with the rapid spread of short message systems.

The phenomenal boom of the mobile phone began in the mid 1990s, especially after the establishment of China Unicom that to a great extent undermined the monopoly of the incumbent China Telecom in mobile communications.¹⁶ By the end of 2003, subscriptions had reached 280 million, giving the country by far the largest population of cell phone users around the world.

Figure 12. The growth of pager and cell phone subscribers in China (millions)



Source: *China Statistics Yearbook* (1999-2003), Beijing: China Statistics Publications.

¹⁵ Fieldwork, summer 2002; December 2003 – January 2004.

¹⁶ Mueller and Tan (1997).

1.3.2d The Philippines

Mobile telephony has been rapidly diffusing in the Philippines since the turn of century (See Figure 13). Subscriber population was less than half a million in 1996.¹⁷ The number jumped to six million in 2000, and then to over 20 million in 2003.¹⁸ In 2001, when former President Joseph “Erap” Estrada was ousted, there were about 11 million mobile phone users nationwide.¹⁹ In the aftermath of the Asian Financial Crisis, the rapid growth of mobile communication in the archipelago of Philippines did not happen in tandem with similarly speedy increase of personal income. This characteristic is played out in two particular ways in which Filipinos use mobile phone. Besides performing its obvious communicative functions in both urban and rural areas, the mobile phone serves as a major symbol of social status that speaks of its owner’s wealth, power, and achievement.²⁰ This creates a rather irrational dimension in the conspicuous consumption of new technology, sometimes known as a cellular phone “mania” in Manila,²¹ a common phenomenon in much of the developing world. At the same time, in order to secure market share, service and equipment providers have to engage in fierce price competition. As a result, the cost of ordinary handsets has been lowered to about US\$ 50 in the open market and half this amount in secondary markets.²² A great majority (70-90%) of subscribers use pre-paid phone cards instead of fixed-term contracts,²³ which “allowed those without credit history, a permanent address, or a stable source of income to purchase cell phones.”²⁴

¹⁷ Kaihla (2001).

¹⁸ Friginal (2003).

¹⁹ See Toral (2003), of the 11 million mobile phone users, about 6.4 million subscribing to Smart Communications Inc., and 4.6 million subscribing to Globe Telecom.

²⁰ Strom (2002).

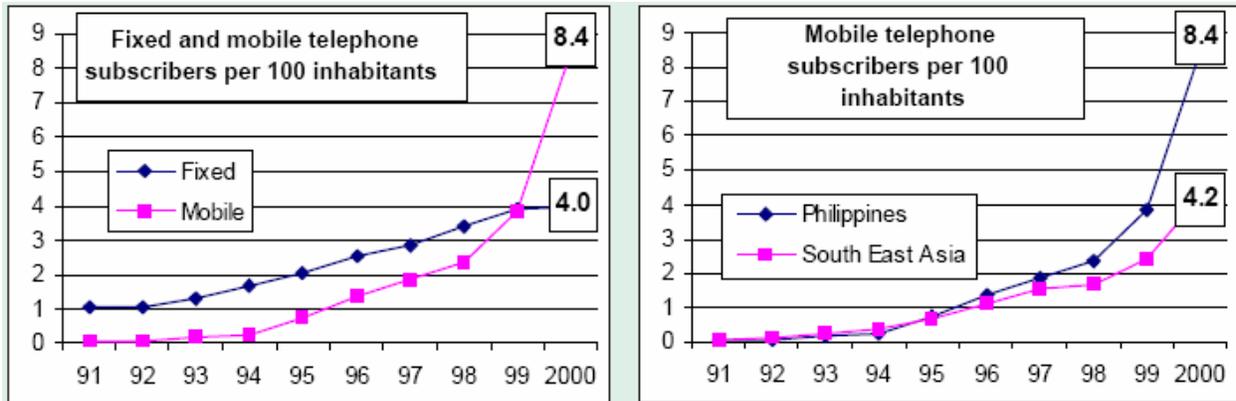
²¹ Rafael (2003, pp. 404-405); also see Arnold (2000).

²² Rafael (2003, p. 402).

²³ Toral (2003, pp. 173-174).

²⁴ Uy-Tioco, (2003, p. 5).

Figure 13. Fixed and Mobile Telephone Subscribers in the Philippines

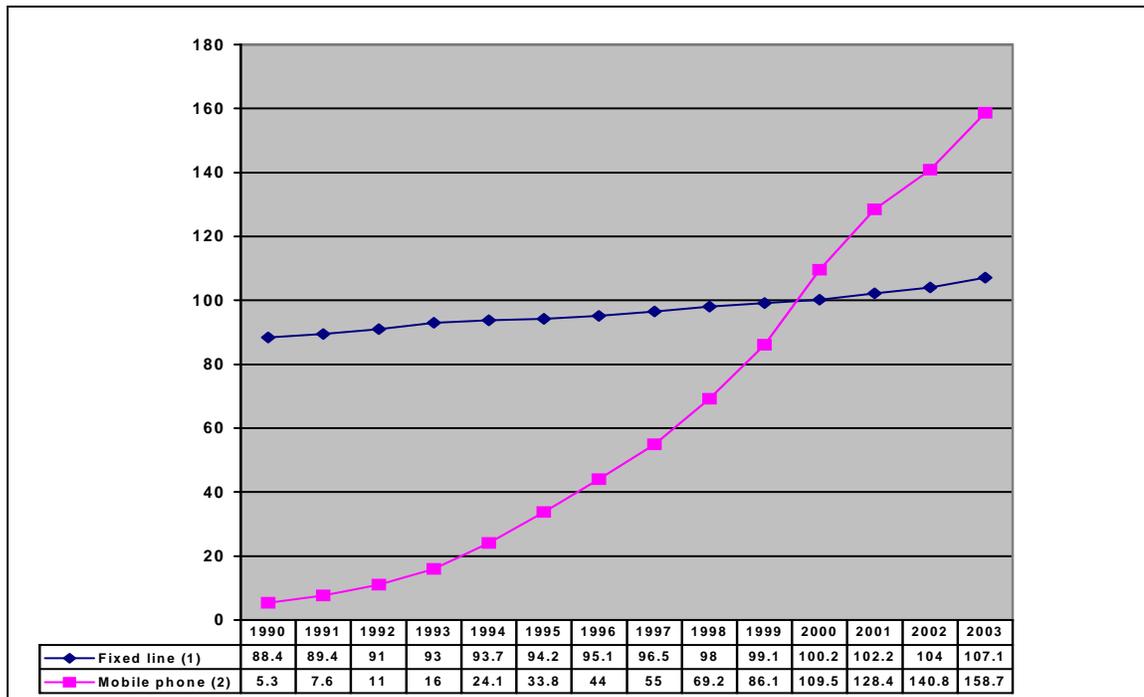


Source: Minges, M., Magpantay, E., Firth, L., & Kelly, T. (2002, p.13). *Pinoy Internet: Philippines Case Study*. Available at <http://www.itu.int>

1.3.3. Mobile Telephony in the U.S.

Like most other countries, there has been substantial growth in the U.S. mobile market over the years (see Figure 14).

Figure 14. Fixed Line and Mobile Phone Subscriptions in the U.S. (millions)



1. Number of households. 2. Individual subscriptions

Source: FCC (2004, pp.11-6, 16-3). *Industry Analysis and Technology Division Wireline Competition Bureau May 2004*. Available at www.fcc.gov/wcb/stats.

The industry has, however, had a long and rather troubled history. The first commercial mobile phone system in the U.S. was set up in Missouri in 1946, a “precellular” mobile system providing a limited service due to capacity constraints in the early infrastructure.²⁵ Cellular mobile systems were delayed until 1983 due first, to the refusal of the FCC to grant spectrum for mobile telephony (in favor of giving the spectrum to television broadcasters) and then to delays in processing applications from operators.²⁶ Once the system was in place, the cost of handsets fell rapidly, but service charges remained high, thus inhibiting the development of a consumer market for mobile phones. In 1976 there were 44,000 mobile phone owners in the U.S.²⁷ With the introduction of cellular phones, this number increased to about 91,000 in 1984, and by 1990 there were about 5m subscribers, representing a penetration rate of just 2%.²⁸ The period of rapid growth in subscribership began shortly afterwards in the early to mid 1990s, driven most likely by falling prices due to increased competition among operators,²⁹ as well as the introduction of digital technology. About two-thirds of U.S. households (64.3m households) now own at least one wireless phone (FCC, 2002) and 58% of Americans aged 12 and above own a wireless phone.³⁰

The U.S. has one of the most competitive wireless communication systems, with its regional markets having up to seven network operators. Some analysts also argue that the U.S. has some of the best consumer prices among OECD countries,³¹ although we must caution that this is not the case with every aspect of wireless. Despite, these apparent advantages, and its traditional status as a pace-setter in the development of new technology, relative to other industrialized countries, the U.S. so far exhibits low awareness and uptake of wireless communication technology, from simple cell phone use to more innovative uses.³² As shall be seen in subsequent sections, the penetration level of wireless communication technologies is much lower in the U.S. than in other developed countries.

²⁵ Paetsch (2003, p.23).

²⁶ Lasen (n.d., p.32); Paetsch (2003, p.150); Steinbock (2003).

²⁷ Lasen (n.d.).

²⁸ Paetsch (2003).

²⁹ Council of Economic Advisors (2000).

³⁰ Genwireless (2001).

³¹ Alden (2002); Beaubrun and Pierre (2001); OECD (2000).

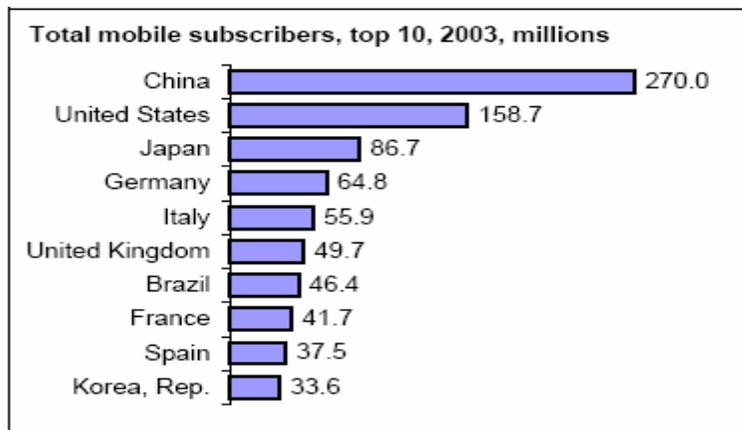
³² Felto (2001); Lynch (2000); Pew Internet and American Life Project (2004); *Revolution* (2003); TNS (June 18, 2001); *The Economist* (2002); *TWICE* (2004).

1.4. WIRELESS COMMUNICATION IN EUROPE, ASIA AND THE U.S. – COMPARATIVE ANALYSIS

1.4.1. Mobile Telephony

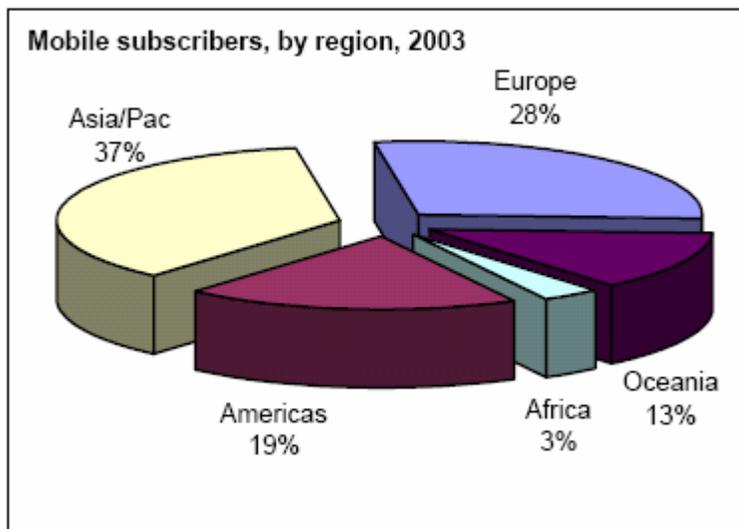
In pure subscription terms, at the country level, China and the U.S., with their large populations, have the highest numbers of mobile phone users (Figure 15). At the regional level, the Asian-Pacific region has the greatest number of subscribers (Figure 16) but at the market level, the unified EU market is the greatest.

Figure 15. Top 10 mobile subscriber nations



Source: ITU (2004, p. A-13). ITU internet reports 2004: The portable internet.

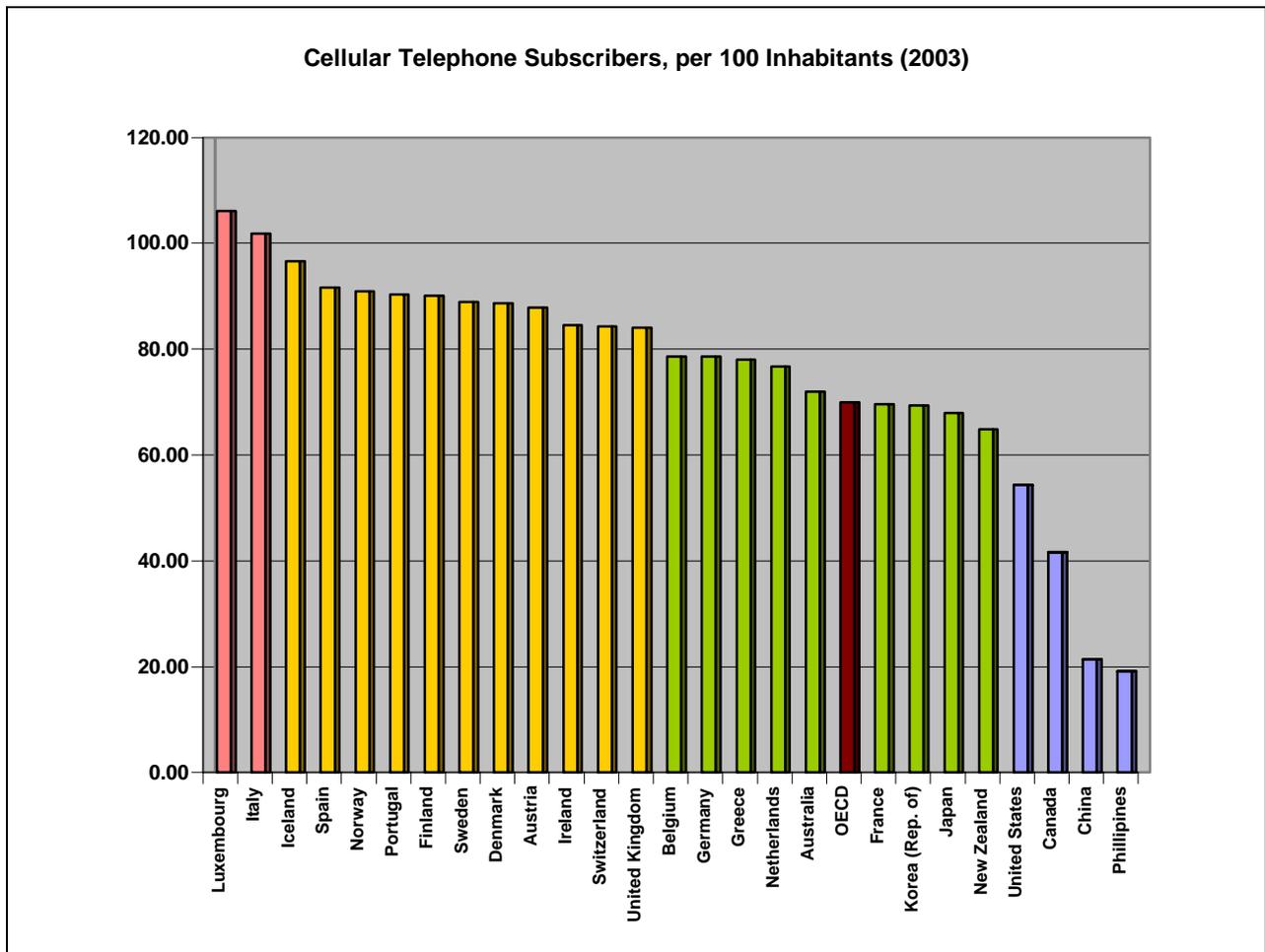
Figure 16. Mobile subscribers by region



Source: ITU (2004, p. A-13). ITU internet reports 2004: The portable internet.

Mobile phone penetration rates of high-income OECD countries as well as other countries under consideration in this study reiterates the dominant position of high-income European countries in mobile telephony diffusion: all countries except France fall above the OECD average (Figure 17). Indeed, Australia is the only non-European country that also has rates above the OECD average. Korea and Japan are close to the average, while North America, China and Philippines fall well below.

Figure 17: Cellular Telephone Subscribers, per 100 Inhabitants. Selected countries (2003)



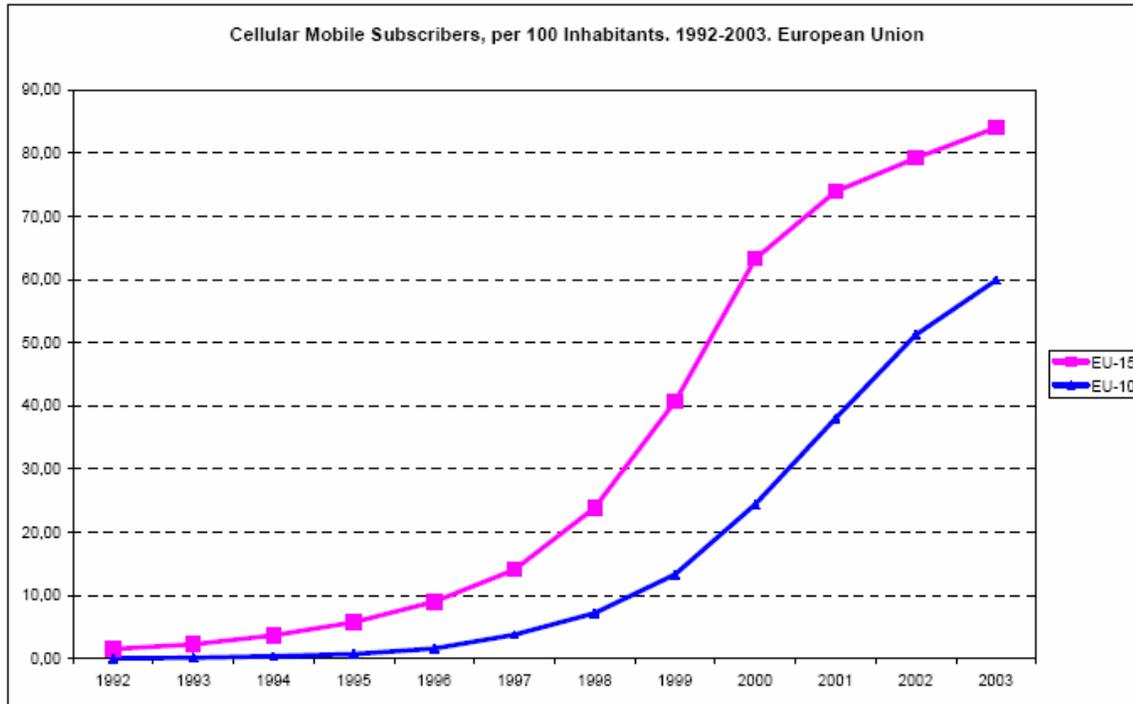
Source: ITU (2004). ITU internet reports 2004: The portable internet. Chart data in Appendix 2C.

Note: Luxembourg, Sweden, UK, Belgium data refer to 2002.

The growth of mobile telephony in Europe has been impressive, as already demonstrated. Nevertheless, looking at particular evolution of the European Union (EU), a big difference can be seen in the development of the market between the 15 old members and the 10 new members that

joined the Union during 2004. Figure 18 shows that there is a lag of 2-3 years between the 10 new EU countries mobile markets and the 15 richer, original EU members.

Figure 18. Cellular Mobile Telephone Subscribers per 100 Inhabitants, EU (1992-2003)



Source: The authors, based on ITU. EU-15: Former EU Countries, EU-10: New EU Countries (2004 enlargement)
Chart data in Appendix 2D

Despite this, the EU-25 average of mobile telephone subscribers per 100 inhabitants in 2003 (80%) is still higher than the continental average (see above, 55.4%) and, thus, higher than other considered geographical areas of the world. The same is valid when considering the 2-3 years delayed market of the 10 new EU members, which, in 2003, had an average penetration rate of 59.9%. Again, then, the European leading position shows a trend of generalization among their different countries. In sum, the analysis of available data shows that the leading position of Scandinavian countries in relation to the diffusion of mobile phone communication has spread among the richer countries of the continent and therefore, it is expected that the rest of Europe will follow the same trend.

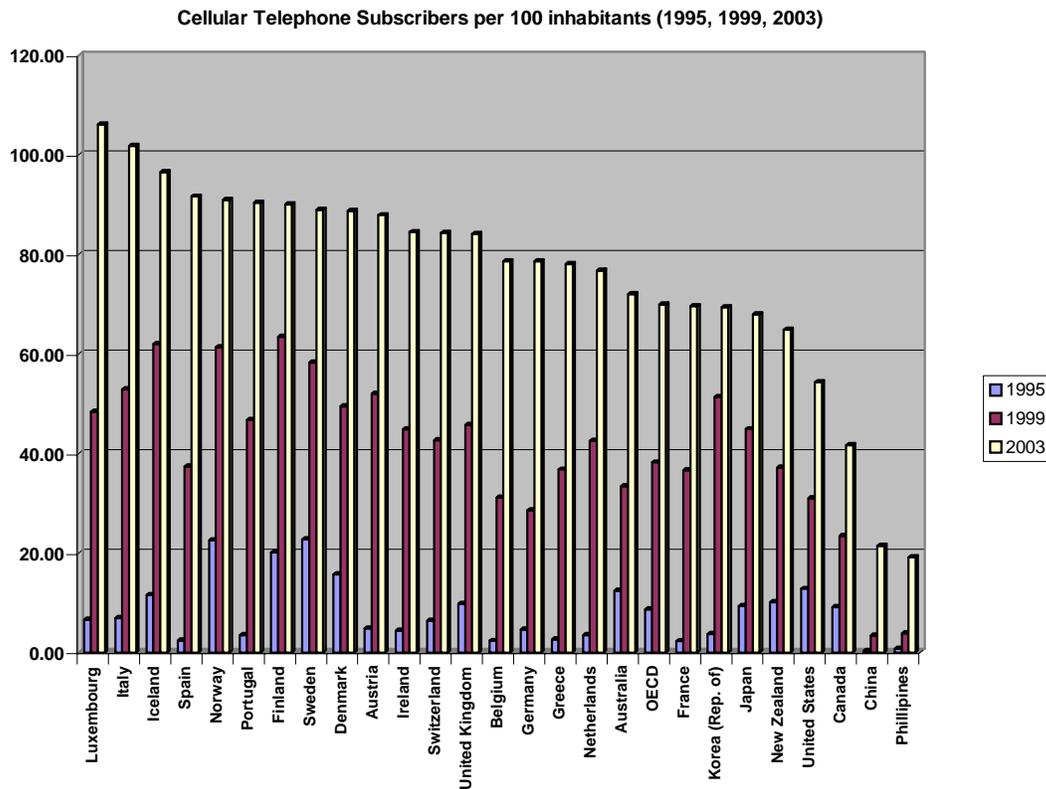
What this tells us is that within the OECD community, European, and especially Nordic countries have been at the forefront of the wireless revolution, in terms of diffusion of the technology. It is interesting to note, though, the slippage in the positions of Norway, Finland and Sweden over this time period. Although they remain in the top 10, they no longer have the highest penetration rates as

they had in 1995. This, according to Kelly, Minges and Gray (2002), is partly an outcome of the prepaid phenomenon, which can distort penetration figures if inactive accounts are counted as if they were active. Finland, in particular, has very few prepaid subscribers (about 2%),³³ unlike other countries in the region that have 50% - 80% of subscriptions being prepaid.

Examining mobile diffusion trends even further, we compare mobile phone penetration rates over three four-year intervals: 1995, 1999, and 2003 (Figure 19). This comparison helps us to show the spill-over effect in Europe mentioned earlier. It can be seen that in 1995, only five European countries were located above the OECD average (8.7%). The pioneering role of the Nordic countries is demonstrated by the fact that the three countries that had penetration rates exceeding 20% (Finland, Norway and Sweden) are from this region. Mobile telephony was not widely diffused in most of the other countries; in fact some (such as Belgium, France, Greece and Spain) had penetration rates lower than 3%. Four years later (1999), however, only five European countries (Spain, Belgium, Germany, Greece and France) were still below the OECD average, and even these were clustered quite close to the average. By 2003, as discussed earlier, the picture had transformed completely with all but one European country exceeding the OECD average.

³³ Kelly, Minges and Gray (2002).

Figure 19: Mobile Telephone Subscribers per 100 Inhabitants (1995, 1999 and 2003)



Source: ITU World Telecommunication Indicators Database; ITU (2004). *ITU Internet Reports 2004: The Portable Internet*. Chart data in Appendix 2E

The Asian countries in our sample show mixed results. Korea experienced enough growth to take it over the OECD average in 1999, but now sits slightly below the average. Japan, which had a penetration rate slightly higher than the OECD average in 1995, saw its rate rise further in 1999 and then fall to a level below the average as well. China and the Philippines lie at the bottom of the range with 21.4 and 19.1 penetration rates respectively in 2003. According to China's Ministry of Information Industry (MII), mobile phones now account for more than half of the telephone sets in China. This growth is impressive given that China's overall teledensity was only 1.1% in 1990, comparable only to the teledensity rate of 1.3% in the United States in 1899.³⁴ And there were only 20,000 Chinese cell phone subscribers in 1990, compared to America's 5.3 million at the time.³⁵ Yet, despite the speed of growth, 280 million subscribers only accounts for 21.8 percent of China's total population. A large number of users have rather limited budget for cell phone consumption, which is reflected in the popularity of pre-paid phone cards. According to China Mobile,³⁶ the country's

³⁴ *China Statistical Yearbook* (1990); *Historical Statistics of the United States* (1976).

³⁵ *China Statistical Yearbook* (2003); *Trends in Telephone Service* (2002).

³⁶ Liu (2004, p. 19).

largest operator, in January 2004, it had 14.4 million subscribers including 5.1 million fixed-term contract subscribers and 9.3 million pre-paid subscribers; among the newly added subscribers in January 2004, only 15,200 signed contracts, whereas 233,000 subscribers chose the pre-paid plan.

The U.S. case is probably most dramatic in terms of its relation to the OECD average. From a position well above the average (though still lower than the top Nordic countries), mobile phone penetration rates in the U.S. have fallen below the average in 1999 and 2003. These varied results are, however, not a reflection of lack of growth in the U.S. or in the Asian countries, but rather of extremely high rates of growth in some European countries, such as Spain, France, Greece and the Netherlands, which had growth rates in excess of 2000% from 1999 to 2003 (Table 2). Indeed Korea especially, but Japan as well, had significant growth, about 1885% and 728% respectively, but not enough to match the rates in Europe. The rate of growth in the U.S. was relatively lower (about 425%), although other European countries such as Finland (448%) and Sweden (391%) also had low rates, clearly a result of their already mature markets. While the slower growth rates of countries like Finland and Sweden can be attributed to their mature markets, there would appear to be other reasons for the low rate in the U.S., since the U.S. has a relatively young market.

Table 2. Mobile Telephone Penetration Growth Rates (1995-2003)

Mobile Telephone Penetration Growth, Selected Countries			
Luxembourg	1619.1%	Germany	1726.2%
Italy	1487.7%	Greece	2988.5%
Iceland	837.5%	Netherlands	2205.7%
Spain	3800%	Australia	579.8%
Norway	404.7%	OECD	807.5%
Portugal	2627.3%	France	3092.9%
Finland	448.7%	Korea (Rep. of)	1885%
Sweden	391.2%	Japan	728%
Denmark	564%	New Zealand	858.7%
Austria	1842.3%	United States	425.2%
Ireland	1928%	Canada	459%
Switzerland	1328.2%	China	7379.3%
United Kingdom	858.7%	Philippines	2656.9%
Belgium	3386%		

Source: ITU data

Finally, a representation of mobile phone diffusion (Figure 20) maps out the relative positions of individual countries in the penetration of mobile phones, showing again the leading position of western European and Asian-Pacific countries, but also showing uneven regional penetration. By leading the way in mobile telephony uptake, the leading countries provide a yardstick or a vision of what fully mobile societies could look like. What remain unanswered are the reasons for differential uptake of mobile telephony, especially between countries with similar social and economic status, which we will explore in subsequent sections.

Figure 20: Regional mobile phone penetration (2001)

		Top Quartile	Second Quartile	Third Quartile	Bottom Quartile
Penetration		≥ 74%	62% - 73%	45% - 61%	≤ 44%
AMERICAS	North America			Canada USA	
	Asia-Pacific	Hong Kong Japan Korea	Australia Indonesia Taiwan	Singapore	China (urban) Philippines Thailand
ASIA/OCEANIA	West Asia	Israel	Turkey (urban)		
	South Asia				India
EUROPE	Eastern Europe			Czech Republic Estonia	Hungary Latvia Lithuania Poland Ukraine
	Western Europe	Finland Italy Netherlands Norway	Belgium Denmark Germany Portugal United Kingdom	France Spain	

Source: TNS Global E-Commerce Report, 2001; TNS A-P M-Commerce Report, 2001.

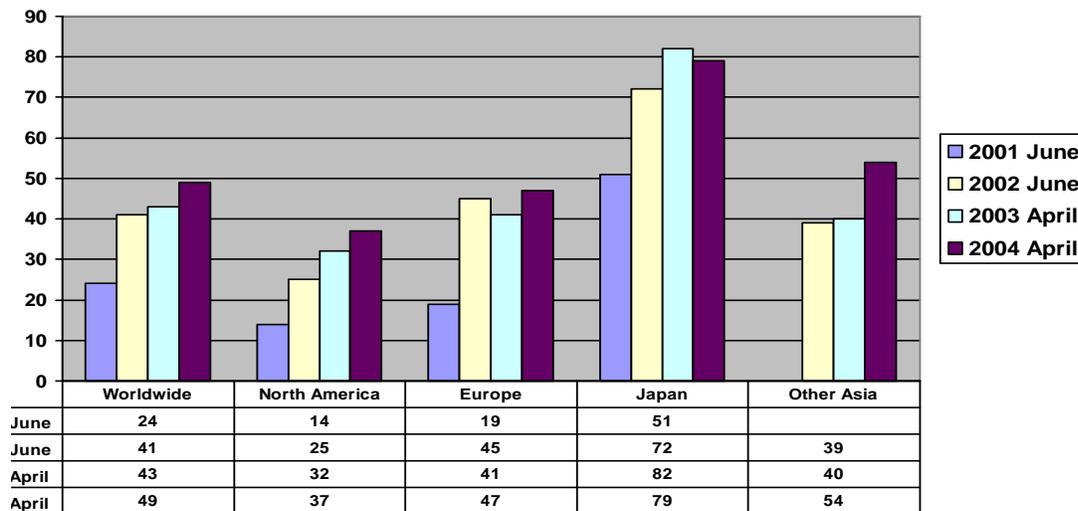
Reproduced from Taylor Nelson Sofres (TNS) (2002, p.6). *Wireless and Internet Technology Adoption by Consumers Around the World*. Accessed March 2004 at www.tns-global.com.

1.4.2. Wireless Internet

There are different ways of accessing the Internet or other data sources wirelessly, such as via cell phones, pagers, laptop computers, PDAs or other specially designed devices, such as the Blackberry. Technological standards, for example the relatively unsuccessful Wireless Application Protocol (WAP) developed in Europe for cell phone web browsing, or the more successful Japanese I-mode system, Wide Area Networks (WANs), and wireless Local Area Networks (WLANs) or Wi-Fi also represent different ways of organizing wireless data access, that are being used in different markets.

Data access via cell phone has obtained the most attention in the research community, probably because it is the primary mode used in the countries where wireless data access is popular.

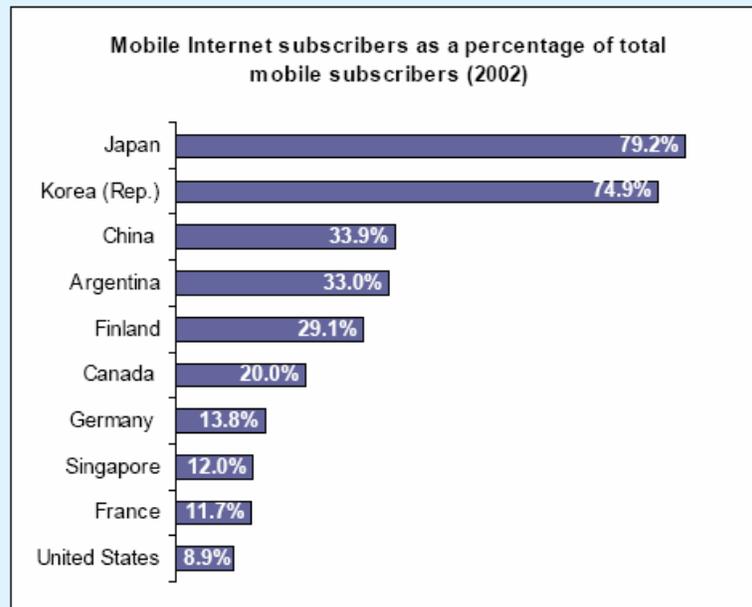
Figure 21. Ownership of Internet enabled Phones (2001-2004)



Source: AT Kearney (2002). *Mobinet Index #5*, AT Kearney (2004) *Mobinet Index 2004* Accessed July 2004 at www.atkearney.com

Yet here also there are intra-regional variations. Figure 21 shows that Japan on its own has consistently had wireless phone Internet access levels exceeding those of North America and all of Europe. Japan also has the highest percentage of mobile Internet users to total mobile phone subscribers (Figure 22). In addition to Japan, Hong Kong and Korea have relatively high levels of wireless phone Internet access, but as can be seen in Figure 23, other countries in the same regions have low uptake, at least in terms of WAP technology, which has anyway, not been very successful (e.g., China and Thailand).

Figure 22. Mobile Internet Subscribers as Percentage of Total Mobile Subscribers (2002)

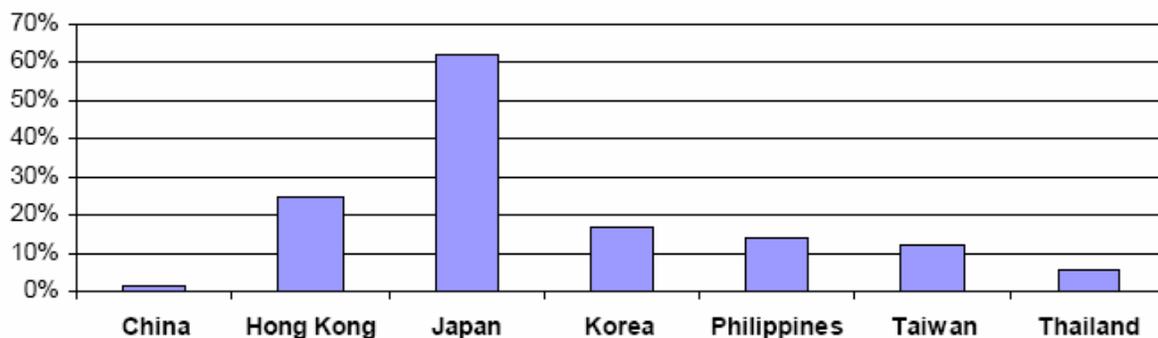


Note: For Japan, the figure includes paying subscribers, whereas in other cases (e.g. Korea), numbers may actually be lower, as those with Internet-enabled handsets may not necessarily be subscribed to a particular service or using particular service.

Source: Srivastava (2004, p.18). *Shaping The Future Mobile Information Society: The Case Of Japan*. ITU/MIC Workshop On Shaping The Future Mobile Information Society, Seoul, 4-5 March 2004. Document: SMIS/06 <http://www.itu.int>

Figure 23. Internet Access via WAP in Selected Asian Pacific Countries (2001)

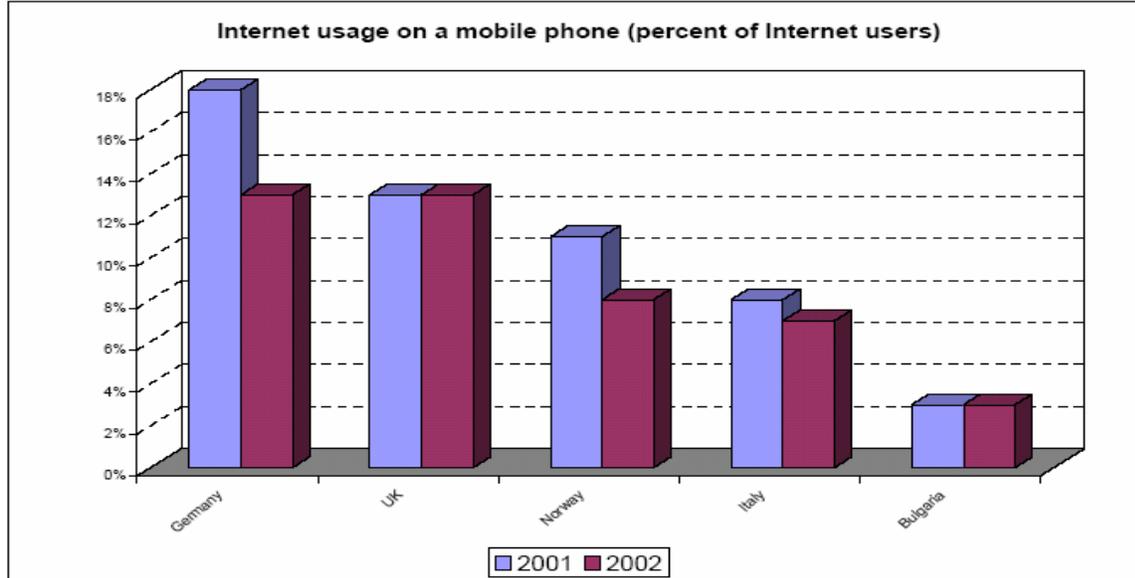
Internet access using WAP phones in selected Asia-Pacific countries



Reproduced from Taylor Nelson Sofres (TNS) (2002a, p.19). Wireless and Internet Technology Adoption by Consumers Around the World. Available at www.tnssofres.com.

Specific data from selected European countries shows that the percentage of users who utilize this system is very low (never rising above 18%) and, what is more, in 2002 percentages did not grow and, in some cases, even fell back (Figure 19). The main cause of this pattern is the high cost of the service, although low data transmission capacity must also be taken into account.

Figure 24. Internet Usage on a Mobile Telephone. (Percentage of Internet Users)



Source: Eurescom (2004) *e-Living: Life in a Digital Europe*, an EU Fifth Framework Project (IST-2000-25409); (www.eurescom.de/e-living). Chart data in Appendix 2F

Diffusion of mobile data applications is equally low in the U.S., as is evident from Figure 17. Mobile commerce and other forms of usage such as text messaging and data downloads are growing at a relatively faster rate in Europe and Asia.³⁷ Surveys report low visibility and usage of the wireless Internet in the U.S. For example, only 30% of U.S. respondents who were aware of Internet access on their wireless devices said they use the wireless Internet.³⁸

1.4.3. Wi-Fi

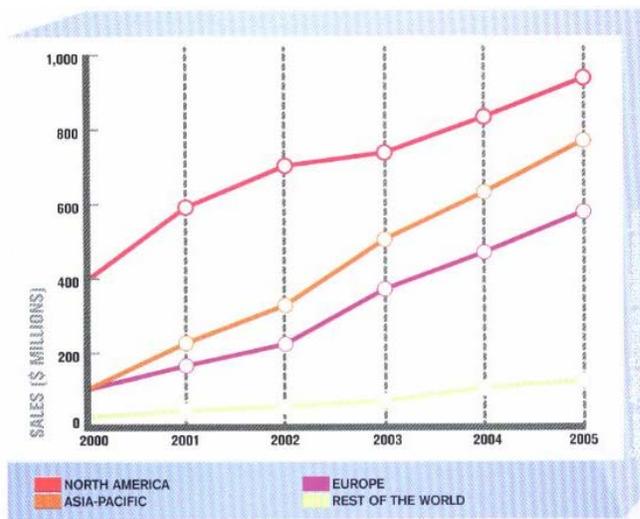
Wi-Fi technology as a means of organizing wireless access to information is gaining popularity in several countries. While Europe leads overall in uptake of wireless phone technology, and diffusion of the wireless Internet via the cell phone has been most significant in the Asian Pacific, the establishment of Wi-Fi systems seems most prominent in the U.S (Figure 25). In 2003, 47% of the 42m Wi-Fi users worldwide were in the U.S., followed by Western Europe with 35% and the Asian Pacific with 17%.³⁹

³⁷ DeJong (2001); Harter (n.d.); ITU (2002).

³⁸ Genwireless (2001).

³⁹ Maddox (2003).

Figure 25 Growth of Wi-Fi around the World



Source: *Wired* (2003, p.10). *UnWired: Special Wired Report*

It is not surprising that the U.S. is the leading Wi-Fi user since Wi-Fi usage is largely PC-driven and U.S. has the greatest penetration of PCs. Nevertheless, it is important to emphasize that it is the technology that is diffusing and attracting attention from people who find it interesting and potentially significant. As we will observe later in the case of the U.S., actual uses of Wi-Fi are not so clear.

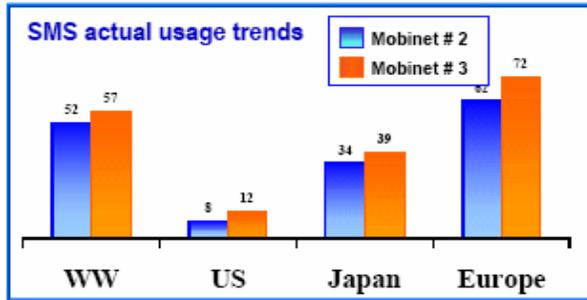
In the case of China, government officials are seen to be the lead users in new wireless technologies. Thus, in January 2004, Wi-Fi had only spread to a very small number of high-end coffee shops in Shanghai and Beijing, but was covering entire government office buildings that were visited during a field trip not only in these two urban centers but also in smaller cities surrounding Shanghai, such as Suzhou, Hangzhou, and Ningbo.⁴⁰

1.4.4. Wireless Messaging

Text messaging is an application rather than a technology but it bears some special attention because it has become a critical aspect of the mobile communication system. Text messaging trends largely mirror the trends in mobile telephony, with European and Asian-Pacific countries leading the market (Figures 26 and 27).

⁴⁰ Fieldwork, December 2003 – January 2004.

Figure 26: SMS usage trends (2001)



Reproduced from A.T. Kearney (2001). *Mobinet Index #3*, p.3. Accessed May 21, 2004 at

http://www.jims.cam.ac.uk/news/press_releases/2001/01_09_06.pdf

Mobinet 2 was conducted in January 2001 and Mobinet 3 in June 2001.

Figure 27: Mobile Phone Owners Who Have Used Mobile Phones to Receive Text Messages (2001)

Percent		Top Quintile ≥ 68%	Second Quintile 59%-67%	Third Quintile 54%-58%	Fourth Quintile 36%-53%	Bottom Quintile ≤ 35%
AMERICAS	North America					Canada USA
	Asia-Pacific	South Korea		Singapore Taiwan	Australia Indonesia	Hong Kong Thailand
ASIA/OCEANIA	West Asia	Turkey (urban)			Israel	
	South Asia					India
EUROPE	Eastern Europe	Czech Republic Hungary	Estonia	Lithuania Poland	Latvia	Ukraine
	Western Europe	Finland	Belgium Germany Norway Spain	Portugal	Denmark France Italy Netherlands United Kingdom	

Source: TNS Global E-Commerce Report, 2001.

Note: The question regarding how mobile phones are used was asked in 30 of the 33 countries. Unfortunately, China, Japan and the Philippines were the exceptions.

Reproduced from Taylor Nelson Sofres (TNS) (2002, p.18). *Wireless and Internet Technology Adoption by Consumers Around the World*. Accessed March 2004 at www.tns-global.com.

1.5. FACTORS ACCOUNTING FOR DIFFERENCES IN PENETRATION RATES OF WIRELESS COMMUNICATION TECHNOLOGY

The variance in diffusion of wireless communication technologies in different countries can be explained by a combination of factors that confound the process of adoption. To take the case of China for example, the rapid diffusion of mobile communications runs against the conventional wisdom that mobile services are too expensive to be commercially viable in developing nations. For

China, the boom of mobile technologies certainly has to do with a strong market demand produced under a series of conditions: (1) historical inadequacies in the telecom infrastructure, (2) continual economic growth with GDP rising 7-9% per year, (3) massive urbanization leading to the emergence of large mobile work forces that migrate within and among the urban areas, (4) the integration of China with the global market, the arrival of global capital (FDI), and the subsequent increase in the demand for just-in-time information.

We present here a summary of elements that have been identified by analysts and researchers, as well as our own observations on factors affecting adoption of wireless communication technology around the world.

1.5.1. Economic factors

Available data, as well as research by TNS,⁴¹ show that initially a country's GDP affects its ability to adopt wireless technology. This must be considered in relative terms, however. Poorer countries may in fact be more enthusiastic adopters of mobile technology, as has been seen in several developing countries. Their ability to diffuse the technology to a majority of their populations (i.e. the penetration rate) is, however, still limited by economic constraints. Similarly, poorer countries tend to have inadequate and unreliable fixed line infrastructure, which makes their citizens more likely to turn to wireless technology, in spite of the cost. But there are also countries with excellent fixed line facilities, (e.g., Scandinavian countries) where mobile technology uptake has been phenomenal. This factor then operates differently in the poor and wealth countries.

1.5.2. Geographic factors

Countries with small land mass (e.g., most European countries) and more densely populated residential settlements (e.g., Japan) are able to speed up the adoption of wireless communications because it is easier to set up the wireless infrastructure. More effort, expense and collaboration is needed to establish such systems in wide areas like the U.S.⁴² On the other hand, it could be argued that some types of wireless systems are more easily installed in wide uninterrupted areas, as some Wi-Fi operators have found. For example, the builders of a 1,500 square mile Wi-Fi network in a

⁴¹ TNS (2002).

⁴² Ling (2004).

rural part of Columbia state found it easier to build that network than to build citywide networks because there was less interference from buildings and radio signals.⁴³

1.5.3. Industry factors

A variety of industry-related factors contribute to adoption levels in different locations. For example, in most countries with the Calling Party Pays (CPP) pricing system, consumers are more willing to adopt the technology because they are only responsible for calls that they make. This is the case in most of Europe. On the other hand, consumers in countries with the Receiving Party Pays (RPP) pricing mechanisms tend to be slower adopters since this system makes them responsible for calls other people make to them (as has been the case in the U.S.). Furthermore, in the U.S., where local calls are free and consumers can buy unmetered fixed line packages, the incentive to use mobile telephones for Internet access, for example, is low. It should be noted though, that other countries with similar market features such as unmetered local fixed line calls (e.g., Australia) have still shown greater levels of adoption than the U.S.⁴⁴ It is also possible that the RPP system is not as significant a factor as has been implied, since the U.S. market is so price competitive that the cost of an incoming call may not be a big issue for consumers.⁴⁵

The existence of uniform technological standards promotes interconnectivity between wireless carriers and therefore makes it easier and more convenient for consumers to use the technology as well. Currently, as an outcome of the free market orientation, there are several incompatible standards operating in the U.S., (e.g. CDMA, TDMA, GSM). This, most observers agree, has been one of the critical factors slowing down the rate of wireless technology adoption in the U.S., in contrast to European countries, which have the uniform GSM standard. For example, it is only recently that U.S. cell phone owners have been able to send text messages to people on a different network. U.S. wireless operators have finally realized how this is affecting their business and are engaging in more collaborative efforts, not only with other operators, but also with the providers of related services, such as data and music.

Related to this last point is the level of competition in the wireless market. Some analysts have suggested that another reason for low uptake in the U.S. is the large number of competitors in the

⁴³ Cook (n.d.; 2004).

⁴⁴ OECD (2003).

⁴⁵ Lynch (2000).

market, which makes it difficult for the operators to attract and maintain consumers. This explanation must however be placed in the right context. Arguably the level of competition need not affect national adoption rates if the issue is that consumers are interested in the technology, they just change operators frequently. Thus, it is individual operators who would be experiencing the churn, but there would still be high use of the technology.

It has also been suggested that, especially with value-added wireless services, adoption has been higher where industry operators have offered consumers appropriate applications (e.g., Japan). This is an important point because, as we will observe later, technological devices and services cannot succeed, no matter how innovative, if they do not meet the motivations and goals of consumers. Wireless service providers in the U.S. for instance, are quickly learning that they cannot expect to be successful in the consumer market using the same products and services they offer to the business community.

1.5.4. Government policy

In some countries (e.g., China), the government has been particularly active in promoting wireless technology, leading to high adoption rates. In others, such as the U.S., this has been left largely to the market, and even in the early days of wireless the U.S. government (that is, the regulatory bodies) actively inhibited the growth of the market. The U.S. was also slow to adopt digital cellular technology, unlike other countries that made the switch fairly rapidly to digital and to a common standard. This also shows how institutional environments, while not fully determining social uses of communication technology, can cause developments to occur at different speeds, due to their bureaucratic ability to control access to required technical resources, such as spectrum.

1.5.5. Socio-cultural factors

The astounding uptake of wireless Internet technology in some Asian countries, such as Japan, has been attributed to their low levels of PC penetration. It seems, however, that in order for this to be a promoting factor, the country also need to be fairly wealthy, since other developing countries with low PC penetration levels have not so far been able to develop similar wireless Internet devices and systems. Conversely, the high penetration of Internet-enabled PCs in the U.S. is seen as a reason for low interest in the mobile Internet.⁴⁶

⁴⁶ Sharma and Nakamura (2003).

Another critical difference between national systems is caused by the predominant transportation method: in the U.S., for example, where most people drive their own cars, certain types of mobile communication activities (such as SMS) are less viable. In contrast, where public transportation is the main means of movement, people have a greater ability to use wireless technologies on the go and consequently develop expertise faster.

Communication style preferences have also been cited as a reason for different adoption rates of wireless technology, especially cell phones. For example, Moschella suggests that Americans prefer asynchronous communication methods such as email and voice mail because they are considered more efficient, keep things brief, leave users in greater control, and are more formal and guarded.⁴⁷ Such national generalizations have to be handled with caution, however. Nevertheless, other researchers have identified similar differences in cultural traits. Mante's survey of people from the U.S. and the Netherlands found that both groups used mobile devices to enhance their reachability, but Americans had a preference for devices that allow control over flow, such as pagers and caller ID.⁴⁸ Plant also concluded that Americans tend to place a high value on their privacy.⁴⁹ We should point out, however, that this would not explain why there has been such immense adoption in other cultures with reticent citizens (e.g. Finland).

1.6. SUMMARY

1. Globally, there has been an explosion of wireless communication, especially mobile phones. Wireless phone subscription is growing faster than fixed line subscriptions but both are growing.
2. Rates of growth vary widely amongst countries, based initially on the economic wealth of countries, but also beyond that, even amongst both poorer and richer countries.
3. Wireless phone uptake occurs for different reasons in different types of economies, e.g., in countries with poor fixed line infrastructure, wireless becomes a technological substitute for fixed lines; in countries with adequate fixed line infrastructure but competitive rates for wireless, wireless is becoming an economic substitute for fixed lines.

⁴⁷ Moschella (1999).

⁴⁸ Mante (2002).

⁴⁹ Plant (n.d.).

4. European countries have exhibited the highest and most rapid uptake of mobile telephony, followed by some Asian-Pacific countries and then the U.S. Mobile Internet uptake, on the other hand, is more prevalent in the Asian Pacific region. Per capita figures show that countries with high growth rates may still have low proportions of their population with access to mobile technology (e.g., China).

We have identified some of the factors accounting for the differences in rates of adoption of wireless communications around the world, including GDP, existing infrastructure for fixed lines, market structure and government policy. Observations about both wireless phones and wireless data access support the conclusion that wireless technology penetration rates do not develop according to geographical or regional boundaries.⁵⁰ In fact, North America is the only region where penetration rates are similar (between Canada and the U.S.).

⁵⁰ TNS (2002).

SECTION 2

SOCIAL DIFFERENTIATION OF WIRELESS COMMUNICATION USERS BY AGE, GENDER, AND SOCIO-ECONOMIC STATUS IN A CROSS- CULTURAL PERSPECTIVE

The adoption of a given new technology, and the embedded facilities it has, is influenced by the restrictions and availabilities that this new technology brings. Those, combined with the final user needs, will lead to dissimilar appropriation processes. For example, SMS is cheap but requires some – physical and mental – abilities and some free time to become an efficient user of this means of communication. On the contrary, a voice call is easily done and does not require special (new) skills. From this point of view, it seems natural that young adults who have to pay their own mobile phone expenses will be more likely to develop SMS texting skills, whereas this is less likely for those of similar age who are introduced to the technology in their working world where their employers pay the bills. In the utility function of the first group, the main cost to take into account is “money expended” while, for the second group, it is “working time.”

So it can be stated that each social group, often defined in demographic terms, will adopt wireless technologies in different ways, as long as the utility functions are different. When accounting for utility, costs and needs should be considered not only from a monetary point of view because the adoption process has two different stages: first, the acquisition of a device and, secondly, the appropriation of the technology. In this section we examine empirical evidence on the socially differentiated patterns for the diffusion of wireless technologies with regard to three basic social variables: age, gender, and socio-economic status. It is important to note that, with the exception of gender, researchers around the world have been using many different ways to define demographic groups by age and socio-economic status.⁵¹ Our task here is therefore to distill general patterns for the social differentiation of wireless diffusion in different societies of Europe, America, and the Asian Pacific, and then consider two questions: (1) Are there global trends, or points of convergence, in the patterns of social differentiation among wireless technology adopters? (2) What are the distinctive demographic patterns for each region or each type of countries, if any?

2.1. AGE

In almost all societies we’ve looked at, wireless technologies were initially marketed to attract adult members of the business community. Business users worldwide remain a leading group in using high-end mobile services, which is particularly true in developing countries such as China and the Philippines. But, across the globe, adolescents and young adults are emerging to play a very active

⁵¹ See, for example, Bucholtz (2002) for a discussion of the complexities associated with defining the concept of youth.

role in adopting and appropriating mobile services such as SMS. The trend is particularly noteworthy in the OECD countries of Europe, America, and the Asian Pacific because the younger generations have more free time, they can live on a loose budget, and most of them do not own a landline. The increasing importance of mobile diffusion among youth has made the subject a popular one among industry analysts and academics, which constitutes the bulk of existing evidence with regard to age in the public domain.⁵²

Before we focus on youth, it is important not to ignore older age users because the lowering of price for mobile services has made the technology increasingly affordable and therefore more likely to attract adopters in all age groups. With the youth groups of certain developed markets reaching near saturation, there are also more deliberate corporate efforts to target the older generations. For one thing, as we know in the European context, middle-aged and elderly users are still using mobile voice telephony more frequently than the younger generations.⁵³ Since the ease to use is more important a utility for this age group, Japan's main mobile operator, Docomo, released the *raku-raku* (or "easy-easy") handset in September 2001, which has a bigger keypad and an easier-to-read screen specially designed for the elderly. More than 200,000 units of the *raku-raku* cell phone were sold in the first two months.⁵⁴

Still in Japan, there is evidence showing that the younger generation of those in their 30s and below are more likely to subscribe to i-mode, Docomo's mobile Internet service, including the latest 3G applications (see Table 3). According to the Mobile Communications Research Group, mobile penetration is much higher among Japanese college students (97.8 percent) and high school students (76.8 percent) than the general population (64.6 percent).⁵⁵ The centrality of the youth market is also observed in South Korea.⁵⁶

⁵² Specifically, the reasons that justify the great diffusion of mobile telephony among young people and the way they appropriated the device are developed in Section 3xxx.

⁵³ Following Ling (2002).

⁵⁴ ITU (2002, p.132).

⁵⁵ Youshii et al (2002) cited in Ito and Daisuke (2003, p. 5).

⁵⁶ Kim, S.-D. (2002, pp. 63-64).

Table 3. The breakdown of i-mode subscribers by age and sex

	User Percentage (%)	
	mova 2G	FOMA 3G
Unknown	3.9	4.0
50 and above	23.4	10.1
40–49	20.6	15.4
30–39	23.2	24.6
25–29	13.8	19.7
20–24	10.1	17.4
19 and under	3.9	8.3

Source: *Docomo*.

As previously discussed, young users are particularly keen at adopting SMS. According to South Korea's Cheil Communications, in May 2003, 93 percent of young Koreans between age 17-19 sent or received SMS at least once a day.⁵⁷ The percentage decreases with age: 92 percent for ages 20-24, 79 percent for ages 25-29, 58 percent for ages 30-34, and 47 percent for ages 35-39. In order to target the youth market more precisely, all three mobile operators of the country offer specialized rate plans for college students (age 18-23) and high school students (age 13-18).⁵⁸ In the meantime, reports show that the penetration of SMS is also higher for Chinese mobile users under age 35,⁵⁹ many of whom have become highly proficient texters who would call themselves the "Thumb Tribe,"⁶⁰ a phrase originally coined for texters in Japan (the *oyayubisoku*).⁶¹

Urban youth groups in Metro Manila are also known for their texting "mania,"⁶² for which they are often called the "Generation Txt."⁶³ This has a lot to do with the cheap prices of SMS, which was initially free in the Philippines. However, nationwide the age of active Filipino texters is significantly higher than in more developed markets. Whereas Korean teenagers are leading the adoption of SMS, Toral's study of 500 mobile phone users from 9 regions in the Philippines shows that those in their

⁵⁷ Cheil Communications (2003).

⁵⁸ For the 18-23 age group, these include SK Telecom's "TTL," KTF's "Na," and LG Telecom's "Khai." For the 13-18 age group, these include SK Telecom's "Ting," KTF's "Bigi," and LG Telecom's "Khai Holeman."

⁵⁹ Xinhuanet (2003).

⁶⁰ See *New Weekly* special issue on the "Thumb tribes" of China, July 15, 2002.

⁶¹ Rheingold (2002, pp.4-8).

⁶² Rafael (2003, pp. 404-405); also see Arnold (2000).

⁶³ Rafael (2003, p. 407).

mid-30s (33-36) are the most active users, whose percentage of frequent uses exceeds that of younger groups.⁶⁴ This is probably because of the economic condition of the younger users, who have less discretionary income, especially for those outside Manila.

In the United States, young people are also active adopters, giving rise to a plethora of different youth lifestyle segments as found out by research companies.⁶⁵ Given their young age (therefore not owing landline) there are also more American youth who have adopted cell phone as their main telephone line than the general population.⁶⁶ But compared to Europe, Japan, and South Korea, only recently has the US wireless communication industry started to target the youth market, which is believed to become a main driving force in the US mobile market.⁶⁷ The prediction has however not exactly materialized. The largest group of users so far has tended to also consist of young professionals in the 30-plus age group.⁶⁸ TNS has concluded that the youth market is as yet not critical to the US wireless market.⁶⁹ And other research documents show that cell phone users tend to be affluent 25-54 year olds.⁷⁰

Available data suggest that anywhere between 29% and 80% of young people in the US own a cell phone, depending on which segment of the youth demographic is taken (Table 4 shows the data for 2001 from one source). The vast range of this statistic is illustrative of the lack of comprehensive and uniform data on the youth cell phone market. One report states that 32% of 5-24 year olds owned a cell phone in 2001,⁷¹ another reports that 79% of youth owned a cell phone in 2002.⁷² Jorgensen reports that 40% of kids in the US own a wireless device, mainly cell phones but also Palms, PocketPCs, pagers and lightweight laptops.⁷³ TNS reports that in 2003, 29% of children aged 6-14 years had a cell phone,⁷⁴ and a study by Selian finds that 87% of youth in college have cell phones.⁷⁵

⁶⁴ Toral (2003, p. 174).

⁶⁵ ScenarioDNA, March 31, 2004; IDC, June 2003.

⁶⁶ Greenspan (2003a).

⁶⁷ See, for example, Fattah (2003); IDC (2003); In-Stat/MDR, February 3, 2004, April 19, 2004; Motsay (2003); TNS, February 8, 2001; TNS (2002); The Yankee Group (2004); Wireless World Forum (2002).

⁶⁸ Fattah (2003); Horrigan (2003); Wagner (2001).

⁶⁹ TNS (2002b).

⁷⁰ Anfuso, April 22, 2002.

⁷¹ W2Forum (2002), *Mobile Youth 2002*.

⁷² Allardyce (2002), regarding the NTCA/FRS survey.

⁷³ Jorgensen (2002).

⁷⁴ (2004).

⁷⁵ Ibid.

Table 4: Wireless service usage by age in the U.S. (%)

Age	2001	
	Cell phone	SMS
12 – 17	51	43
18 – 24	61	38
25 – 29	60	32
30 – 34	69	25
35 – 54	62	n/a
55 & older	50	n/a

Source: <http://www.genwireless.com>

Young people are found to have greater interest in non-voice uses of wireless communication technology such as SMS and the wireless Internet.⁷⁶ For example, with respect to text messaging, about 18% of young adults (18-24yrs old) have used it to receive alerts or notifications, compared to 4% of adults; about 7% of young adults have used it to participate in group chats versus about 2% of adults; and about 14% of young adults have used text messaging to vote in a contest or participate in a poll, compared to about 4% of adults.⁷⁷ They were the first group to appropriate SMS following the promotion of texting via TV entertainment shows that encourage their (mostly young) audience to send voting messages via their cell phones, a phenomenon now known as the “American Idol effect.”⁷⁸ On the other hand, in a way surprisingly similar to the Filipino market, subscribers above age 25 or even 35 were found to be the most active texters in American text messaging sites such as Verizon TXT Messaging, Yahoo! Mobile SMS, and SMS.ac, although the 18-24 age group is the most active among those who subscribe to Spring PCS Messaging.

In Europe, there is a significantly more detailed body of research results available in the public domain. A first picture of the situation in 2002 for selected European countries (see Figure 28) shows that, regardless of the country’s penetration rate, young people are the ones with higher access to mobile telephony. Moreover, the older people are, the less likely they would have access to this technology, a trend that becomes more pronounced for the elderly above age 60. Nevertheless, age differences decrease when mobile telephony further diffuses in society. Thus, the Nordic countries tend to have higher penetration among those who are 55-year-old and above when compared to Spain, where the penetration rate is 50 percent for this age group.

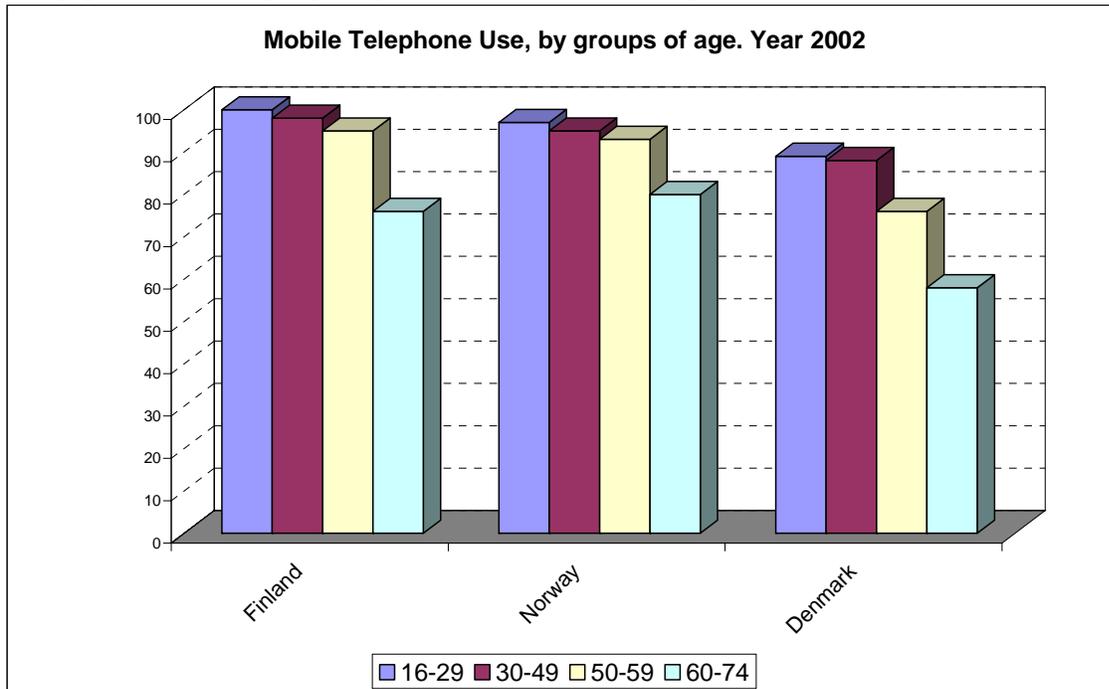
⁷⁶ TNS (2002).

⁷⁷ The Yankee Group’s 2003 Mobile User and Mobile User Young Adults surveys. Reported in TWICE (2004).

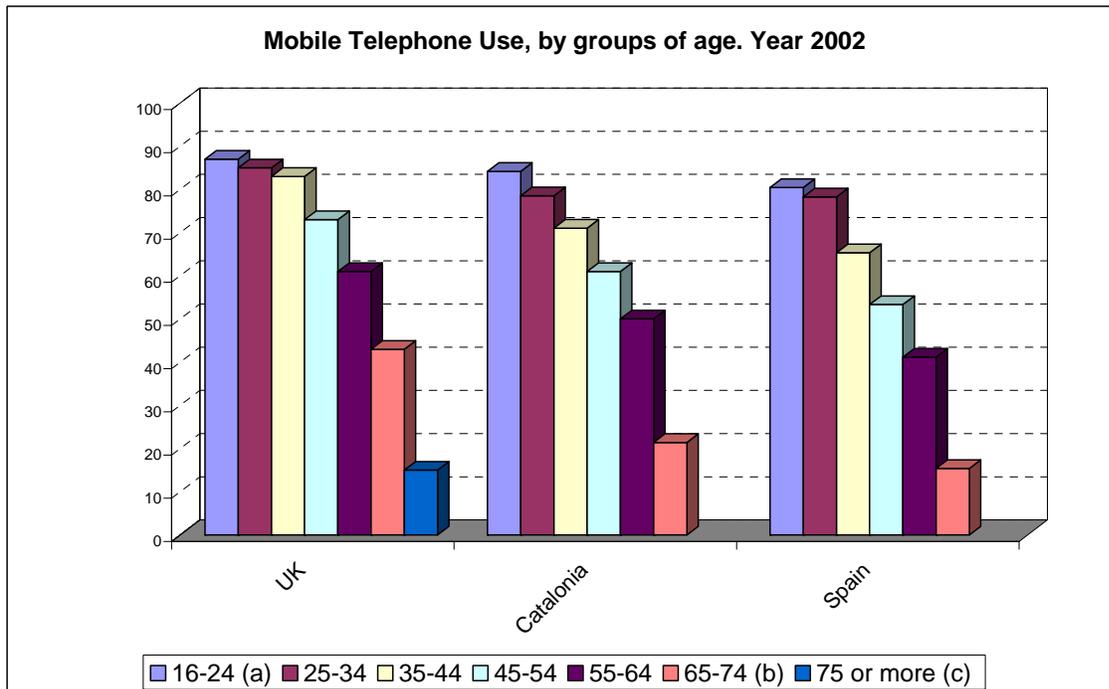
⁷⁸ In-Stat/MDR official quoted in 3G America, no date, *Short message services for success*.

Figure 28. Access to Mobile Telephone by Age, Selected European Countries (2002)

% of population of each group of age with access to Mobile Telephone



Source: Nordic Council of Ministers (2002); *Nordic Information Society Statistics* (2002); Helsinki.



^(a) UK: 15-24. ^(b) Catalonia and Spain: 65 or more. ^(c) Catalonia and Spain: Data not available

Sources:

Spain and Catalonia: Household Information Technology Survey, National Institute of Statistics, Spain (www.ine.es); and own elaboration.

UK: Consumers' Use of Mobile Telephony Survey, Office of Telecommunications (www.ofcom.org.gov).

Chart data in Appendix 2G

Moreover, differences in terms of age are not only in the access to a mobile telephone but also in the everyday usage that each person, according to her/his age, makes of the device. We have seen this in the Asian Pacific and the United States. Research in Europe supplies more detailed evidence for this observation regarding both youth and older people.

While studying Finnish children, two studies conducted in 2000 define the kids and adolescents in five categories according to the relationship they establish with the mobile telephone.⁷⁹ For **children under 7**, first of all, relationship with the device is often either indifferent (imaginative) or personifying (animistic). Games are the most interesting feature of the device which, in fact, can be interesting by its own although important toys are more significant. The next group of age is **children form 7 to 10** years-old, whose attitudes begin to differentiate: some children are very interesting in the mobile telephone as a device while others remains indifferent to it. It could happen that the children, for instance, forget to take the telephone along when going to a friend's house, while other toys, like Pokemon cards, would not be as easily forgotten. The relationship with the device is, in fact, quite pragmatic and, given the fact that mobile communication in itself is too abstract for children this young, they see the mobile telephone more as a game machine. In the **pre-teens' (10 to 12** years-old) world, mobile telephony changes its position, becoming more central and leading to the beginning of the "mobile fever" age that takes place at the time that the importance of hobbies and friends increases, while the significance of toys has diminished. Thus, the mobile telephone becomes an important appliance as a communication tool with peers. They use it in a creative way, for instance, sending empty (content) text messages as a means of teasing people, or playing various types of boom call games.⁸⁰ With regard to the fourth category, **teenagers from 13 to 15**, it can be stated that they have distinct attitudes so that mobile telephony could be practical and instrumental or, alternatively, expressive and affective. Moreover, it is at this age when handset personalization becomes important and aesthetics takes importance. Finnish **pre-adults (16-18** years-old), finally, tend to decrease the off-line use of the device at the same time that the practical and the instrumental side become more appreciated. Nevertheless, this does not mean that they will avoid texting. Indeed, the opposite was reported from the UK, where the same age group would regularly have SMS text message conversations over a number of hours at evening time.⁸¹

⁷⁹ Oskman and Rautiainen (2002) and Mante and Piris (2002).

⁸⁰ A boom call is a short signal call intended not to be answered. It has no cost for the emitter or the receiver.

⁸¹ Smith et al. (2003)

Under a wider age scope, for European teenagers in general, “the most important thing in mobile communication remains building up and maintaining their social networks.”⁸² This observation made in Finland also applies to other countries such as Norway⁸³ and Spain.⁸⁴ It is particularly true “when (youth are) forming their first romantic relationships,”⁸⁵ because the technological adoption in this occasion combines coordination uses and expressive uses of mobile communications to a similar extent.⁸⁶

Compared to three other age groups (those between 16-18, 25-35, and 50-60), the British group of **young adults (25-35 years-old)** is the most multi-modal (face-to-face, phone, e-mail, instant messaging) and the only cohort to report not using face-to-face as their most frequent means of communicating.⁸⁷ This suggests that they have already developed a set of selective and individualistic networking behaviors. Moreover, young adult males in Norway have an extremely high use of voice telephony accompanying other modes of communication. They conduct lesser amount of texting and have lesser degree of personalization than teenagers.⁸⁸

Working adults were the first adopters of mobile telephony.⁸⁹ Available information with regards to this group of age states that voice use is more common⁹⁰ and coordination uses are the most popular.⁹¹ It also must be added that texting and other creative uses, as boom calls, are introduced to the adults thanks to relationship with daughters and sons. These adults would then use SMS to communicate with other adults, although often at lesser intensity.⁹²

When getting older, people focus their relationships around family and close friends and have smaller social networks.⁹³ This was demonstrated by analyzing the number of names in one’s mobile telephone directory, which significantly decreases for people above age 60, compared to middle-aged

⁸² Oskman and Rautiainen (2002)

⁸³ Ling (2002).

⁸⁴ Valor and Sieber (2003)

⁸⁵ Oskman and Rautiainen (2002) referred to Finland.

⁸⁶ Ling and Yttri (2002) referred to Norway; Kasesniemi (2003) referred to Finland; Valor and Sieber (2003) referred to Spain;

⁸⁷ Smith et al. (2003).

⁸⁸ Ling (2002).

⁸⁹ Fortunati and Manganelli (2002); Agar (2003); Laco  e, Wakeford and Pearson (2003).

⁹⁰ Ling (2004, p. 146), referred to Norway.

⁹¹ Frissen (2000), referred to The Netherlands;

⁹² Ling (2004, p. 146), referred to Norway.

⁹³ Smith et al. (2003), referred to the UK.

adults and, of course, young people and teenagers.⁹⁴ In general, old people are not used to communicate through SMS.⁹⁵ While we could consider that they are reluctant with this new channel of communication, there have been also ergonomic problems (for instance, buttons or screen dimensions) that prevent the elders from an extended use of the different features of a mobile telephone.⁹⁶

2.2. Gender

Following the trend of decreasing or even reversed gender gap among Internet users,⁹⁷ the diffusion of mobile technologies among the female population has been catching up with or surpassing the level of adoption among males. Although the degree of disparity varies, as reportedly men are still significantly more interested in adopting Wi-Fi,⁹⁸ the general pattern of female users being on the rise has been observed in different parts of the world. Moreover, the perceived and actual utility functions also differ between the gender groups, resulting in different modes of adoption and appropriation.

Relatively speaking, the old gendered pattern of diffusion persists the most in the Asian Pacific when compared to Europe and America. This is unsurprising in the newly developed markets such as China and the Philippines because the traditional marketing approach still lingers to target one group of users above and beyond all others: the business community, of which most are men. But even in Japan and South Korea, the male gender continues its dominance. For example, by December 2003, male user accounts for 57 percent of Docomo's 2G subscription and 64 percent of its 3G subscription in Japan (see JP report, p. 5). In South Korea, as of November 2003, 88 percent of adult male population subscribed to mobile services, whereas it was only 69 percent for adult females.⁹⁹

⁹⁴ Ling (2004, p. 109), referred to Norway.

⁹⁵ Ling (2004, p. 146), referred to Norway and Smith et al. (2003), referred to the UK.

⁹⁶ Lobet-Maris; Henin (2002); Moore (2003)

⁹⁷ Katz, Rice and Katz (2002)

⁹⁸ *Wireless Week* (2003).

⁹⁹ KISDI Report (2003). Also see Kim, S.-D. (2002, pp. 63-64).

Table 5. The breakdown of i-mode subscribers by sex

	Men (%)		Women (%)	
	movia 2G	FOMA 3G	movia 2G	FOMA 3G
Subscriber breakdown	57	64	43	36

Source: Docomo.

However, in Japan, South Korea, and China, female adoption has been catching up in a significant way as evidenced by the increasing prominence of female mobile culture and commercial campaigns targeted at women. Japan has been known for its culture of *kawaii* or “cute culture” that has been extended to include mobile phone as the latest female fashion item, using flashy colors and cute characters as decorations.¹⁰⁰ The fad has spread to females in other Asian countries, particularly those of younger age. In South Korea, mobile service providers have started to concentrate on the female market segment by introducing distinct handsets, rate plans, and special service packages appealing to women. These include SK Telecom’s “Cara,” KTF’s “Drama,” and LG Telecom’s “i woman.” Meanwhile, Chinese female users, especially those of the white-collar class, are known for their preference for red clamshell design with ornaments made of manmade or real diamonds. A number of handset manufacturers consequently started to produce such cell phones to meet the needs of this market segment.¹⁰¹

Female users not only appropriate mobile phone as a fashion item but, more importantly, also as a key channel to maintain intimate personal relationships, as opposed to men who tend to use mobile phone for instrumental purposes. This is evident in the case of SMS in China: while one survey in 10 cities and 9 towns shows that the penetration of SMS tends to be the higher among male users,¹⁰² another by BDA China finds that the majority of frequent daily SMS users are female.¹⁰³ This means although overall more males are using SMS, the intensity of usage is higher among female texters because they use the technology to communicate more with their close friends and family members.

In the United States, there is certain inconsistency in existing findings about gender differentiation in terms of mobile diffusion. While one study released in May 2004 shows that females are still lagging behind (see Table 6), another shows there were already more female users than male users between

¹⁰⁰ McGray (2002); Hjorth (2003); Richie (2003).

¹⁰¹ Interviews in China, December 2003.

¹⁰² Xinhuanet (2003).

¹⁰³ *Mobile subscribers in China 2002*. BDA China.

1997 and 2000 (see Table 7). The second study also reveals that, from 1993 to 2000, the percentage of women users rose from 39 percent to 52 percent, whereas the percentage of men dropped from 61 percent to 48 percent, with the female-male ratio of the US population being 52:48.

Table 6: Gender of wireless data users

Wireless Data User Demographic Profile	Wireless Data Users	Non-Users of Wireless Data	All Wireless Subscribers
Female	45%	48%	46%
Male	55%	52%	54%

Adapted from Smith, B. (2004). *Measure of data's bottom-line effect*. *Wireless Week*, May 1. Retrieved August 16, 2004 from <http://www.wirelessweek.com/article/CA414479?text=measure+of&stt=001%C3%8A>

Table 7: Mobile phone use in the U.S. by gender (%)

	US population	1993	1995	1997	1998	2000
Women	53	39	48.5	52	55	52
Men	47	61	51.5	48	45	48

Robbins, Kathleen, A. & Turner, Martha, A. (2002). *United States: Popular, pragmatic and problematic*. In J. E. Katz (Ed.), *Perpetual contact: Mobile communications, private talk, public performance* (pp.80-93). Port Chester, NY: Cambridge University Press.

However, there is a more complicated picture when it comes to how the new technology is adopted and for what kinds of use. Surveys from Cingular Wireless for example indicate that during 2001 – 2003 men have been the greater users of cell phone in terms of actual talk time.¹⁰⁴ Their last study in 2003 showed that men talk 14 percent more than women on their cell phones. Women were reported to perform more personal activities, using 80 percent of their airtime for personal chat and 18 percent for business, while men use 67 percent for chat and 30 percent for business.¹⁰⁵ Like in the case of China, American women also appear to be more frequent users of text messaging websites, which is shown in the Table 8.

¹⁰⁴ Cingular Wireless (2003).

¹⁰⁵ Ibid.

Table 8: Visits to text messaging sites by gender

Sites	Predominant Gender
Sprint PCS - Messaging	Female (59%)
Verizon TXT Messaging	Female (55%)
SMS.ac	Male (57%)
Yahoo! Mobile SMS	Female (57%)
Source: Hitwise	

Reproduced from Greenspan, R. (2003b). UK texting takes off. *ClickZ Stats*, July 16. Retrieved August 16, 2004 from http://www.clickz.com/stats/markets/wireless/article.php/10094_2236031

Recent data also suggest that some gender stereotypes are being challenged by wireless communication uses. For example, although gaming has traditionally been considered a male domain, the Cingular Wireless study of 2003 found that women (6 percent) use the gaming feature on their cell phones more than men (3 percent). A 2004 study confirms that 28 percent of women used the gaming feature as compared to 17 percent of men.¹⁰⁶ The question that remains is whether both genders play the same types of games and the answer is probably no.

Across Europe, workingmen were in the past found to be early adopters of wireless technology,¹⁰⁷ particularly in the cases of young men in Belgium¹⁰⁸, Russia¹⁰⁹, and Norway.¹¹⁰ But studies in recent years have found much smaller gender difference in adoption rates. This is demonstrated in the Table 9 and Figure 29 that gather some selected data for 2002. For the sake of highlighting, the ratio of females (% of penetration) over males (% of penetration) has been added to the table. As the percentage of penetration is still lower for females, the ratio never exceeds the unit. Therefore, in this particular situation, the higher the ratio, the more equal it is. Hence, as a general trend, gender differences tend to disappear with the increase of mobile penetration rates.

¹⁰⁶ Dano (2004).

¹⁰⁷ Agar (2003); Fortunati and Manganelli (2002); Frissen (2000); Lacohee et al. (2003); Ling (1999).

¹⁰⁸ Lobet-Maris and Henin (2002, p. 103).

¹⁰⁹ Vershinskaya (2002, p. 114).

¹¹⁰ Ling (2002); Skog (2002, p. 261).

Table 9. Access to Mobile Telephone, by gender. Year 2002 (% of persons in each category, who have access to mobile telephone)

	2002		
	Female (1)	Male (2)	Female / Male (1) / (2)
Finland ^(a)	92	95	0,97
Norway	91	94	0,97
Sweden	87	92	0,95
Denmark	77	84	0,92
Italy	71	88	0,81
UK	71	80	0,89
Germany	61	78	0,78
Catalonia	56	64	0,88
Spain	51	60	0,85
Bulgaria	13	21	0,62

^(a) 2001

Sources: Own elaboration and (in alphabetical order),

Bulgaria, Italy, Germany and UK. Source: Eurescom (2004): *eLiving: Life in a Digital Europe* (www.eurescom.de/e-living)

Denmark. StatBank Denmark. Statistics Denmark (www.dst.dk)

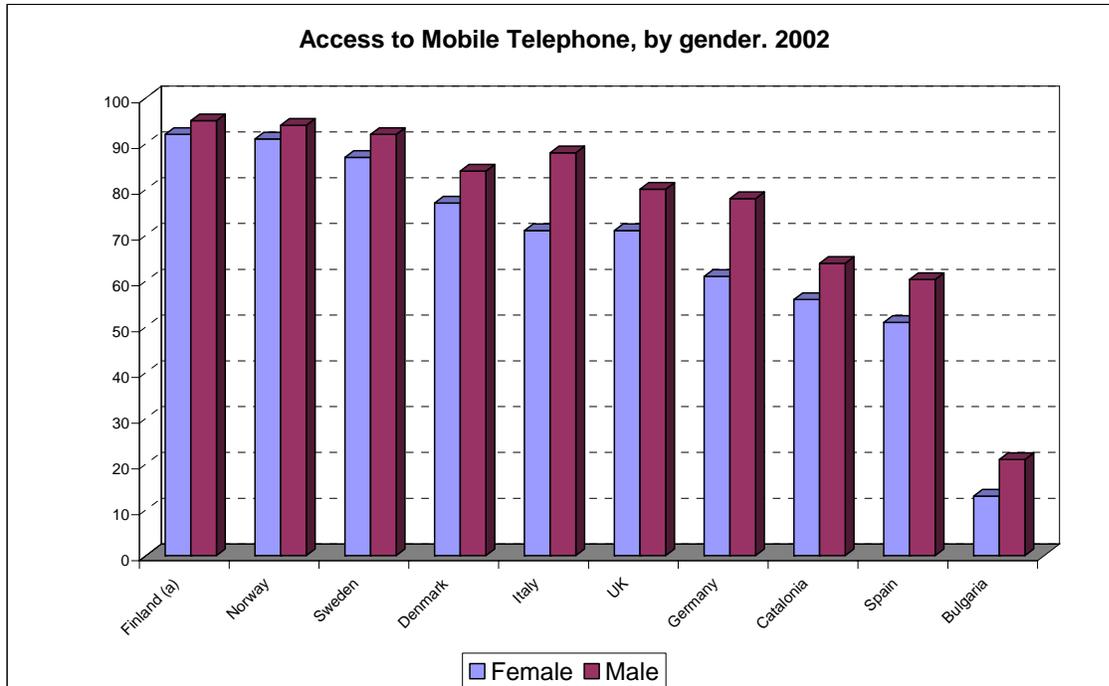
Finland. Source: Household Budgets Survey, Statistics Finland (www.stat.fi)

Norway. Source: Survey on Media Use, Statistics Norway (www.ssb.no)

Sweden. Source: Statistical Yearbook of Sweden 2004 (www.scb.se), Statistics Sweden; and own elaboration.

Spain and Catalonia. Source :Household Information Technology Survey, National Institute of Statistics, Spain (www.ine.es); and own elaboration

Figure 29 Access to mobile telephone, by gender, year 2002 (% of each gender)



(a) 2001

Sources (in alphabetical order):

Bulgaria, Italy, Germany and UK. Source: Eurescom (2004): eLiving: Life in a Digital Europe (www.eurescom.de/e-living)

Denmark. StatBank Denmark. Statistics Denmark (www.dst.dk)

Finland. Source: Household Budgets Survey, Statistics Finland (www.stat.fi)

Norway. Source: Survey on Media Use, Statistics Norway (www.ssb.no)

Sweden. Source: Statistical Yearbook of Sweden 2004 (www.scb.se), Statistics Sweden; and own elaboration.

Spain and Catalonia. Source: Household Information Technology Survey, National Institute of Statistics, Spain (www.ine.es); and own elaboration

Like in Asia and America, researchers in Europe observe differentiated mobile phone uses between the genders.¹¹¹ Commenting on three surveys conducted about the evolution of mobile usage in Norway, Ling states “the mobile telephone has changed from being a gadget for the guys into being more of a social networking tool for girls.”¹¹² Moreover, “[w]omen often have a central position in this activity and, thus, the adoption and use of the device, particularly for social communication can be seen as a type of pre-socialization of adolescent girls and their role as keepers of the social network. While during the recent past much of this activity is often carried out via the fixed telephone, the newer technology has opened a new possibility here.”¹¹³

¹¹¹ Sometimes, as we will see, some previous hypotheses are assumed without falsation for the wireless communication world.

¹¹² Ling (2002, p. 44).

¹¹³ Ibid.

Again referring to the Norwegian case, Skog observes on the basis of his fieldwork during 1999-2000 that “[t]he gendering of mobile phones may be described via the use of mobile phones, as well as in how gender leaves its imprint on mobile phones. The mobile phone companies seem to design phones to match the traditional female and the male cultures.”¹¹⁴ As previously discussed, a similar process of appropriating technology exists in the Japanese, Korean, and Chinese markets where handsets are specially designed, and “gendered,” to appeal to female users. Skog goes on to point out that, on the other hand, “for Norwegian boys, the importance of the mobile phone relates to its functional, practical and instrumental qualities, whereas girls stress the symbolic and expressive aspects, particularly in terms of social relationships and interpersonal ties.”¹¹⁵

According to the online survey by Valor and Sieber,¹¹⁶ there is no significant gender difference in Spain, although teenage boys are more likely to use mobile phone for fun, the researchers declare that this is not a very important aspect. In this survey, girls are also found to use the mobile phone because it would make them more available for others to contact, whereas boys of any age tend to have a more technical and autodidactic profile.

2.3. Socio-Economic Status

The adoption of wireless technologies is usually expected to correlate with higher socio-economic status. This is the trend based on observations made in the Asian Pacific and the United States, especially in the case for more advanced (and therefore expensive) applications and in newly developing markets. However, in Europe, where average penetration is 70 percent for the continent and over 90 percent in certain countries, there is a tendency that income is now less important a predictor for mobile phone adoption, for example, in the UK (see Section 1 and also Section 3.1). We can therefore hypothesize that the higher the mobile telephony penetration rate, the less the income differences between adopters and non-adopters. This can be initially affirmed by comparing the US and Asian Pacific with Europe, where affordable mobile telephony has changed the device from a sign of differentiation to something habitual in everyday life.

¹¹⁴ Skog, B. (2002, p. 268-9). Fieldwork included survey among Norwegian students of ninth grade (compulsory school).

¹¹⁵ Ibid, p. 268).

¹¹⁶ Valor and Sieber (2003). Online survey with 1274 valid cases, developed in 2002 among teenagers (14-17 years-old) and young adults (18-22 years-old) of both sexes.

Yet the relevance of socio-economic status persists in regions where the diffusion of mobile phone has not reached the same high level as in the more developed European countries. In South Korea, researchers found significant gap between the mobile phone penetration rates for high-income and low-income populations. 84.3 percent of people with monthly income above KRW 3.5 million had adopted the technology. But for those who earn less than KRW 2 million per month, the percentage is only 69.9.¹¹⁷ This gap is noteworthy because there is very little difference between the two income groups with regard to their landline subscription rates.¹¹⁸ Similarly, the median income of cell phone users in the United States was found to be \$52,200 in 1997, exceeding the national median of \$35,200 by a wide margin. Although this income gap is likely to have narrowed significantly in recent years, a national representative survey of Americans in 2000 continue to show that the level of income is a significant predictor for mobile phone adoption and if people would choose to continue or stop using the new technology.¹¹⁹ Meanwhile, the business community is still the primary user group for successful high-end services in the US such as Blackberry and other wireless data applications.¹²⁰ Because income often closely correlates with education attainment, the persisting income disparity implies that on average users of wireless services are also better educated. A study in China, for example, shows that college graduates are significantly more likely to adopt SMS.¹²¹

The nearly universal pattern of wireless users being wealthier and better educated adds a peculiar dimension to the processes of social appropriation. That is, besides performing communication functions, mobile phone may serve as a major symbol of social status that speaks of its owner's achievement. While this added value is fading away in most OECD countries, it continues to play an important role in newly emergent markets like China, where only 21.8 percent of the population owns mobile phones,¹²² and the Philippines, where conspicuous consumption related to cell phone contributed to what is known as a mobile phone "mania" in Manila.¹²³

A related development is that after wireless technologies are diffused to the lower middle class or even members of the urban underclass, low-end services would emerge to meet the particular needs of the new adopters. This is noteworthy as diffusion reaches saturation among those with high socio-

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Rice and Katz (2003).

¹²⁰ Fitchard (2002).

¹²¹ Xinhuanet (2003).

¹²² Liu (2004, p. 19).

¹²³ Rafael (2003, pp. 404-405); also see Arnold (2000) and Strom (2002).

economic status. The trend can be observed in developing countries as well as more developed ones regarding four less expensive wireless services: pager, Little Smart (or PHS), SMS, and prepaid phone card.

Despite the challenge posed by cell phone, pager service still has a customer base among those with lower income. In the United States, there is a rather loyal pager market because the technology is cheaper, less conspicuous, has better coverage, and allows the user greater control over whom they would communicate with. As a result, revenues from pager sales in the US have increased by 17.2 percent between 1998 and 2002.¹²⁴ The appropriation pattern is however very different in China, which once had 50 million pager users in 2000.¹²⁵ The cost benefit of pager is obvious in the Chinese context. However, as the conspicuous consumption of mobile phone surges, pager has been increasingly stigmatized among the urban middle class as “outdated,” “unreliable,” and suited only for the culturally “unsophisticated” migrant workers.¹²⁶ Under this discourse, even the new migrants in Chinese cities feel the need to disassociate themselves from this technology, leading to the undermining of the customer base. The trend was exacerbated when many pager operators took flight, often in an irresponsible manner, into other more profitable businesses and leave low-income subscribers ill informed or completely uncared of.¹²⁷ The country thus quickly lost almost 30 million pager subscriptions during 2000 – 2002.¹²⁸

The Chinese are quick in abandoning pagers, but they are even quicker in adopting the low-end service of Little Smart (or *xiaolingtong*), which will be discussed in more detail in Section xxx [the China section]. Basically, Little Smart is a limited wireless phone service that allows subscribers to communicate via low-power mobile handsets within the boundaries of their respective cities, while paying only the price of a landline. It is based on the PHS (personal handyphone system) technology from Japan, where this service is adopted mostly by students in low-income families, who are now also shifting to regular cellular services. But the Little Smart proved to be a major success in China, setting a sales record of USD 2 billion in 2003, when 25 million subscribers were added to the Little Smart market in a single year. This reflects extraordinarily strong demand for inexpensive mobile

¹²⁴ Euromonitor (2003).

¹²⁵ *Annual Statistical Report on the Development of Telecommunications in China*, Ministry of Information Industry (2001).

¹²⁶ Qiu (2004).

¹²⁷ *Ibid.*

¹²⁸ *China Statistics Yearbook (2000-2002)*.

technologies, especially among the country's lower middle class, which is a phenomenon with great implications for the rest of the developing world.

Another manifestation for the appeal of low-budget wireless service is the wide popularization of SMS since the turn of century. In China, SMS is cheap, at the rate of RMB 0.1 (a little more than USD 0.01) per message, or 8 text messages for the cost of one-minute mobile phone call.¹²⁹ A survey thus shows that 40 percent of Chinese mobile subscribers between age 18 and 60 had used SMS.¹³⁰ The popularity of SMS was confirmed by BDA China, whose report finds that 70 percent of urban mobile subscribers in the country have used some form of mobile data services.¹³¹ In the Philippines, "texting has been the preferred mode of cell phone use since 1999, when the two major networks, Globe and Smart, introduced free and, later on, low-cost messaging as part of their regular service."¹³² As previously mentioned, ample evidence demonstrate that there is a similar surge in Europe, Japan, and the United States in SMS adoption among the lower-income groups of students and teenagers. While there are other factors leading to the high adoption rates among the younger generations such as more free time and ability to work intensively on the small keypad (see more detailed discussion in Section IV), the much lower price of SMS as compared to voice telephony is recognized as a major element for young adopters in the more wealthy societies.

Prepaid service is arguably the most important form of appropriation that caters to the needs of those with lower income and education. In the Philippines, for instance, a great majority (70-90 percent) of mobile subscribers choose to use prepaid phone cards instead of fixed-term contracts,¹³³ which "allowed those without credit history, a permanent address, or a stable source of income to purchase cell phones."¹³⁴ According to China Mobile, the largest mobile operator in China, the company had 144 million subscribers in January 2004 including 93 million pre-paid subscribers as opposed to its 51 million fixed-term contract subscribers; among the newly added subscribers in January 2004, only 15,200 signed contracts, whereas 233,000 subscribers chose the pre-paid plan.¹³⁵

¹²⁹ Turchetti (2004).

¹³⁰ "SMS market triggers thumb economy," Xinhuanet.

¹³¹ *Mobile subscribers in China 2002*. BDA China.

¹³² Rafael (2003, p. 404).

¹³³ Toral (2003, pp. 173-174).

¹³⁴ Uy-Tioco, (2003, p. 5).

¹³⁵ Liu (2004, p. 19).

Prepaid service is also important for the less wealthy Europeans and Americans. Data from 2002 shows that about 70 percent of Norwegians in their early teens use prepaid subscription. This percentage falls down for those in their middle 20s (those with more stable income) and arises again for those close to the retirement age of 60 (again, less income).¹³⁶ The case is similar in the United States, where for a long time young people and low-income groups could not afford for cell phones due to limited access to credit. The introduction of prepaid services in 1996 helped to overcome this problem.¹³⁷ As a result, the pattern of wireless phone ownership among the two major ethnic groups of the country has changed over the period of 1999 – 2002. While African-Americans were significantly behind in adoption in 1999, they have surpassed Whites and been at the lead percentage-wise since 2001 (Table 10).

Table 10: Wireless phone ownership by ethnic group

	1999 ¹	2001 ²	2002 ¹
African-Americans	37%	74% (12-34yrs)	65%
Whites	42%	56% (12-34yrs)	62%

Adapted on the basis of ¹Fattah (2003) and ²Genwireless (2001).

Finally, in terms of Wi-Fi and mobile Internet, there is initial signs showing that people of higher income and education tend to be early adopters. An online survey conducted in summer 2004, however, shows that the majority of mobile Internet users in China are those of medium income and education.¹³⁸ 45 percent of the users have a monthly income of 800 – 3,000 yuan (or USD 96.7 – 362.5), whereas the high-income bracket of more than 3,000 yuan only account for 10.6 percent of total subscribers. Moreover, the education breakdown is 44 percent middle-school education, 31 percent junior college education, 24.5 percent college education, while those with masters and doctoral degree only account for 0.44 percent. This is probably due to the early stage of the technological diffusion and the fact that most people in the high income and high education bracket tend to already have PC-based Internet access and they are less willing to learn the new skills needed for mobile Internet.

¹³⁶ Ling (2004, p. 113).

¹³⁷ Robbins and Turner (2002).

¹³⁸ “First large-scale survey on mobile Internet in China successfully completed (in Chinese),” *Guangzhou Daily*. August 26, 2004. Important is to note that this is an online survey without random sampling. It targets subscribers of Monternet, China Mobile’s mobile Internet service, which accounts for most but not all of China’s mobile Internet market.

2.4. SUMMARY

1. The penetration of mobile phone is higher among people of younger age. Although business consumption continues to dominate expensive high-end data services, young people tend to have more access to mobile phones and they are particularly active in using SMS. The penetration rate drops most significantly among the elderly.
2. There are major differences among the countries in terms of which age group has the highest penetration for which services. In more developed markets such as Europe, teenagers have the highest access rate and they are the most active in using SMS; whereas in newly emerging markets like the Philippines it is the young professionals from their 20s to mid-30s who have higher access.
3. While there used to be more adopters among the male population, the gender gap has become insignificant or even reversed in Europe and the United States. In the Asian Pacific, the old gendered pattern tends to persist, especially in the latest 3G services, although female adoption has been also catching up.
4. Socio-economic status remains a main factor in the adoption of mobile technologies, although in Europe there are initial signs showing that the importance of income reduces after diffusion in a given society reaches near saturation. But as we learned in most societies, income and education still affects the rate of penetration within a social group. They also influence which type of service would become popular as shown in the cases of prepaid mobile phone cards and SMS, which are widely adopted among those with limited budget throughout the world.
5. The adoption of Wi-Fi and mobile Internet is also influenced by age, gender, and socio-economic status. As reported, men are significantly more interested in adopting Wi-Fi in Europe, and they are the majority user of i-mode in Japan. The pattern of mobile Internet adoption in China seems to be that access rate is higher among users of medium income and education, rather than those of top-level socioeconomic status.

In general, there is considerable social differentiation in the adoption of wireless technologies. The adoption pattern of mobile phones clearly varies along the dimension of age. While the gender gap and socio-economic differentiation are diminishing, especially in more saturated markets, they remain significant in parts of the world. In the case of Wi-Fi and mobile Internet, it seems that age, gender, and socio-economic status all matters at this early stage of development. Although the specific pattern of differentiation varies in different countries, the general findings of section confirm

that different social groups are adopting mobile services differently due to different needs for adoption and appropriation.

SECTION 3

ANALYSIS OF SOCIAL USES BY AREAS AND COUNTRIES

3.1. EUROPE

3.1.1. The High Popularity of Mobile Telephony

Quantitative data show that, as has been already seen in Section 1, the European average penetration of mobile telephones is over 55%. Within the UE-25 in particular, this ratio arises to 80% and, in some countries, it is above 90% (Scandinavian countries, for instance). In practical terms, these figures point to the high popularization of this NICT. Although penetration is not complete, because there are certain segments of age among which the use of this technology is still quite poor¹³⁹, it can be affirmed that, at present, mobile telephony is already affecting transversely most European societies.

To support that affirmation we are going to show some extra empirical evidence. First of all, we can see that the penetration of mobile telephony in the private sphere is very high. Figure 30 shows household ownership of mobile telephones for some selected European countries. This data, indeed, includes mobile telephones provided at work to family members that are actually used for private purposes and do not gather to the number of devices available in a given household.

The data, thus, are different from that given by ITU¹⁴⁰ but are also of huge interest as they reveal the practice of handset borrowing. Essentially, some members of the family, through the practice of borrowing are active users of mobile telephony even though they are non-owners. Eventually, these family members will have their own device.¹⁴¹

The leading countries are, as usual, the Nordic ones with Finland arriving at a penetration of 92% of households in 2003. What is most relevant is that the gap with respect to the Scandinavian countries has decreased over time, leading to a situation, in 2003, in which 7 out of every 10 households had a mobile telephone, except for France (66%).

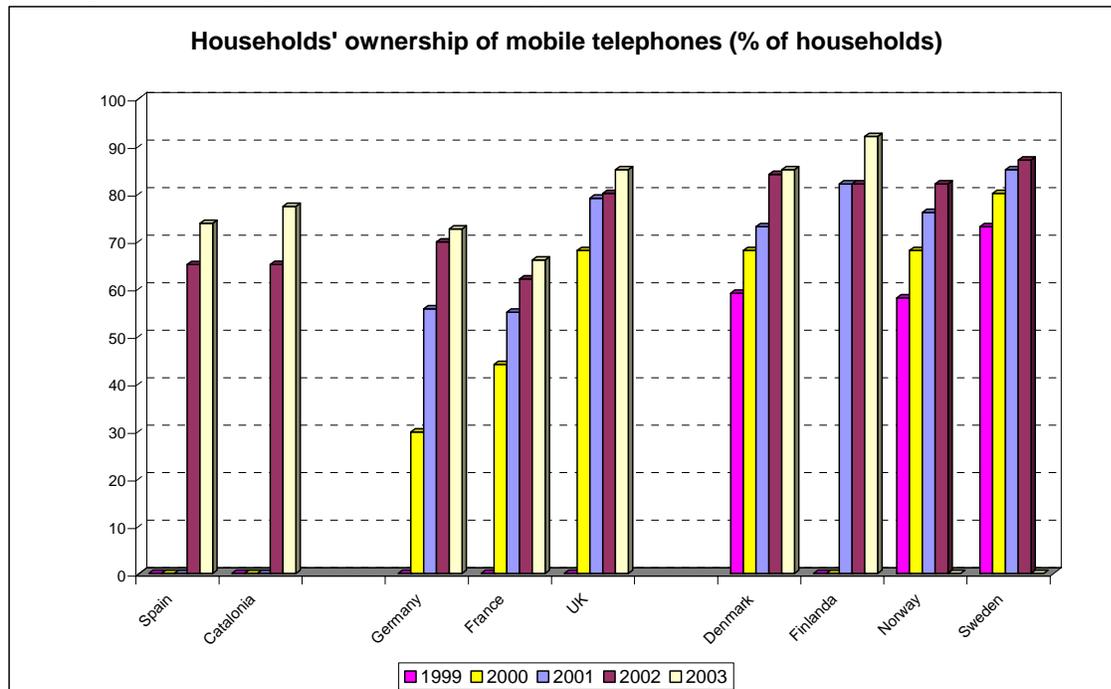
¹³⁹ See section 2.

¹⁴⁰ Mobile Telephone Subscriptions. See section 1.

¹⁴¹ Ling (1999b).

In this sense, it is worth highlighting the data from Germany. In 2000 only 30% of households had at least one mobile telephone, while in 2003 this penetration rate reached 73%.

Figure 30. Households' ownership of mobile telephones (% of households)
A comparison among some selected European Countries



(a) Finland: Data for years 2001 and 2002 belong to the same survey, referred to 2001/2.

Source: Own elaboration based on:

Spain and Catalonia. Source: Household Information Technology Survey, National Institute of Statistics, Spain (www.ine.es); and own elaboration.

Germany. Source: Survey of Income and Expenditure, Federal Statistical Office, Germany (www.destatis.de).

France. Source: Permanent Survey of Household Life Conditions; National Institute of Statistics, France (www.insee.fr).

UK. Source: Consumers' Use of Mobile Telephony Survey, Office of Telecommunications (www.ofcom.org.gov).

Denmark. StatBank Denmark. Statistics Denmark (www.dst.dk).

Finland. Source: Household Budgets Survey, Statistics Finland (www.stat.fi).

Norway. Source: Survey on Media Use, Statistics Norway (www.ssb.no).

Sweden. Source: Statistical Yearbook of Sweden 2004, Statistics Sweden (www.scb.se); and own elaboration.

Source data in Appendix 2H

There is an interesting point related to NTIC, which is the digital divide. There is little information on this subject when talking about Europe, so it is relevant to look at the information on one country in terms of penetration of mobile telephony by income. Table 11 shows the ownership ratio of mobile telephones at two different moments of time for the UK. In 1996-97, when the country penetration

rate was around 15%¹⁴², there was a big difference by income: 40% penetration rate in the first quintile versus 3% in the bottom one. This gap shows an important reduction in 2000-2001 thanks to the increase in the bottom quintile penetration rate, which increased to 23% while the first quintile only reached a 66% penetration rate. Our hypothesis is that this phenomenon can be observed in all European countries as the cost of mobile technology reduces and it becomes more and more popular.

Table 11: Percentage Ownership of Mobile Telephones by Income Quintile Group. United Kingdom. 1996-97 and 2000-01

	1996-97	2000-01
Top fifth	40	66
Next fifth	21	60
Middle fifth	12	52
Next fifth	6	34
Bottom fifth	3	23

Source: www.statistics.gov.uk. Family Expenditure Survey.

The popularization of mobile telephony in Europe can also be seen in the huge amount of SMS that users send each year. A recent study commissioned by the German Ministry of Economy and Labor states that in 2003 the most SMS were sent in Germany: 25000 million¹⁴³. This figure means that each German cellular subscriber sent, on average, 386 SMS during the year, that is 1.06 SMS per day. On the other hand, Spain, with 19900 million¹⁴⁴ of SMS sent during the same year, is the fourth European country in the ranking but, when the average number of SMS sent by cellular subscribers is taken into account, we can see that in 2003 each subscriber sent an average of 531 SMS, which means 1.45 SMS per day. Summing up, what should be highlighted from these two cases is the strong use that the European population makes of this method of communication.

In the context of this data, throughout this section we are going to depict the influence the mobile telephone is already exerting on different spheres of existence. We will see how this technology is affecting the everyday life of the families, and bringing about changes in disabled persons' routines. The working sphere will be also analyzed, as well as some other fields such as intelligent transportation systems and the negative aspects related to the use of this technology. Finally, some paragraphs will be devoted to the mobile entertainment market.

¹⁴² Following ITU, 15% in 1997.

¹⁴³ <http://www.laflecha.net/canales/moviles/20040901/> (News Published 09/01/2004)

¹⁴⁴ Ibid.

3.1.2. *Uses in Everyday Life*

Mobile telephony use has been incorporated to everyday life activities whether they are legal or illegal¹⁴⁵. Handsets are personal¹⁴⁶ objects adhered to the body¹⁴⁷, like watches¹⁴⁸, whose main feature is the communicational function¹⁴⁹ despite the fact that the mobile telephone has developed other important uses and functionalities. In this sense, being elements of our routine, mobile telephones are perceived, nowadays, as essential instruments. Indeed, when they fail, users tend to feel lost¹⁵⁰ because of the great reliance on the device they quickly developed. For instance, the address book is currently only stored in the mobile telephone handset. This, together with the fact that nowadays there is no need to memorize telephone numbers because they are always available on handsets, could lead to a situation in which a person can be isolated because her/his mobile telephone does not work properly.

It is worth pointing out that one main reason used to justify the purchase of a mobile telephone is **safety and security**¹⁵¹. In general, this justification is commonest between adults and elderly people, and also among those ones who are reluctant to the use this technology.¹⁵² Indeed, the notion of a mobile telephone as a lifeline is one of the central images of the device.¹⁵³ In this sense, the literature gathers different examples¹⁵⁴ on this matter as, for instance, car accidents or main catastrophes in which lives were saved thanks to the availability of a mobile telephone; or in a previously unimagined way, people were able to report to their dearest ones some dramatic situations in which they were involved and even let them know their love.¹⁵⁵

This is, basically, an instrumental use given to the mobile telephone, although we can find examples of expressive use (for instance, when calling to say “I love you” in those extraordinary and dangerous

¹⁴⁵ Harrington and Mayhew (2001); Lacohee et al (2003); Varbanov (2002).

¹⁴⁶ Katz and Aakhus (2002); Anderson and Heinonen (2002, p. 7); Cohen and Wakeford (2003); Lorente (2002, p. 6 - 8); Lobet-Maris and Henin (2002, p. 111)

¹⁴⁷ Fortunati and Manganelli (2002)

¹⁴⁸ Ling (2001); Fortunati and Manganelli (2002); Kasesnieimi (2003); Oskman and Rutiainen (2002)

¹⁴⁹ Moore (2003)

¹⁵⁰ Ling (2004)

¹⁵¹ Crabtree et al (2003); Geser (2004); Haddon (2000); Lacohee et al (2003); Ling (2004); Oksman and Rautiainen (2002).

¹⁵² Ling (2004).

¹⁵³ Ling (2004, p. 35); Oksman and Rautiainen (2002).

¹⁵⁴ Katz; Aakhus Eds. (2002); Ling (2004).

¹⁵⁵ Agar (2003); Ling (2004)

situations described above). Within this instrumental category it is also the coordination function, which has arisen as a fundamental use of the mobile telephone in everyday life.

The device has demonstrated its usefulness for the **coordination of the daily family activities**.¹⁵⁶ In this sense, and despite the acceptance discourse in the late 90s, the busier the parents are, the earlier adoption of the device is.¹⁵⁷ Nowadays, almost all the family members are networked and, thus, remote care-giving functions can be developed more easily. This is valid both in the case of children¹⁵⁸ and in the case of old-aged persons. In this sense, it should be interesting to have deeper information about how elderly people use the mobile telephone and, particularly, if there is any difference among countries in which the family solidarity is higher (for instance, Mediterranean ones) compared to those in which family ties are less intense.

An important part of coordination is related to travelling that members of a family habitually do. These journeys can be made by car, public transportation or even by foot, and include diverse activities that, for instance, could be to go to the supermarket or to pick up the children from school and drive them to any out-of-school activity. A study¹⁵⁹ demonstrated that, in this sense, the mobile telephony is not significantly changing the number of trips a person makes, but allows the redirection of journeys that have already begun.

These kinds of adjustments, which mobile telephony has made habitual, belong to the Micro-coordination category:

Micro-coordination is the nuanced management of social interactions. [It] can be seen in the redirection of trips that have already started, it can be seen in the iterative agreement as to where and when can meet friends, and it can be seen, for example, in the ability to call ahead when we are late to an appointment.¹⁶⁰

Summing up, what can be said about micro-coordination is that it allows increased levels of efficiency in everyday activities thanks to perpetual contact. However, it must be added that misuse

¹⁵⁶ Ling and Haddon (2001); Ling and Yttri (2002); Ling (2004).

¹⁵⁷ Frissen (2000).

¹⁵⁸ See Section 2 for detailed information on the use that children of different ages give to the mobile telephone.

¹⁵⁹ Ling and Haddon (2001)

¹⁶⁰ Ling (2004, p. 70)

of the mobile telephone can result in a decrease, at least partially, of this efficiency. In this sense, some activities of coordination that previously could have been done with lower costs are, nowadays, more expensive both in terms of time and money.¹⁶¹

Some features that characterize mobile telephones are also helping, and allowing, communication with and within some **handicapped** individuals. In this sense, texting is bringing a kind of new normality in the communications of deaf-mute persons¹⁶², and also has facilitated improvements in dyslexic children.¹⁶³ There are some other examples of improvements in handsets that, although not originally designed for those purposes, have proved to be very useful in particular situations. For instance, vibra-call is a very interesting feature for deaf persons; or even the possibility of pre-programming the automatic dial of a given number when pushing just one button helps old-aged people to begin a remote communication. This lifeline established through the mobile telephone can also be seen in some public events in which little children are invited to put on an adhesive with the name and the mobile telephone number of their parent or guardian¹⁶⁴.

Although those examples in which technological evolution itself has benefited some collectives thanks to a creative use given to the device, there are still some deficiencies to be solved. For instance, blind persons have more problems with mobile telephones than they have with traditional wired telephones because interfaces are more complicated. This has led to the design of special devices for blind people with no texting capabilities and with a restricted number of buttons pertinently identified in Braille.¹⁶⁵

Mobile telephony has also changed our **working world**. Indeed, first adopters of the device were truckers, construction workers and maintenance engineers¹⁶⁶ and the device was thought of as a tool for work, basically because of its price. However, it became more widely adopted, thanks to the use that other social strata made of the device once mobile communication costs became affordable.¹⁶⁷

¹⁶¹ For instance, it is different to give advice because a person is arriving late to a meeting than to arrive deliberately late and only give advice in the last minute, instead of giving it when the contingency was known.

¹⁶² Kasesniemi et al. (2003) also observed that video-MMS was used by deaf persons to talk in sign language.

¹⁶³ Skog (2002)

¹⁶⁴ Forum de les Cultures 2004, Barcelona.

¹⁶⁵ The company Owasys (www.owasys.com) has developed a mobile device for blind persons.

¹⁶⁶ Agar (2003, p. 52), referred to Scandinavian countries.

¹⁶⁷ See Section 3 for detailed information on the use that children of different ages give to the mobile telephone.

Mobile telephony, indeed, first affected what we can call mobile workers, that is, the staff that works both at the office and out of the office. Although the nature of displacements are not the same, here we are considering both long distance travels and short distance ones. So then, for instance, a mobile worker could be a commercial that has to visit different clients located in the same city where the office is or in another continent. In all the cases, although technological facilities to be used could be different, the situation is similar because, as long as the staff is away from the home office, contextual constraints become unpredictable¹⁶⁸.

Mobile telephony allows permanent availability, which is positively valued in general but especially at work and its influence is, in some sense, similar to other contexts. Productive time, as opposite to dead time, has increased thanks to perpetual contact, because time spent traveling can be used to go on with productive activities that previously were impossible, or more difficult, to do.

What can be said to this respect is that mobile telephony reinforces networked activity and allows new ways of connectivity that, to some extent, can be undertaken more easily than other ones. This, indeed, can be seen both in short and long distance mobile workers. For instance, in long distance travels that need at least one night away from home office, e-mail is generally checked in the evenings, at the hotel room; while the mobile telephone is used more often and, sometimes, as a way of solving disconnection problems created during a trip.¹⁶⁹ Moreover, in the case of mobile workers who cover short distances routinely also use the mobile telephone during car travels. The use of voice-mail and the possibility of re-valuating traveling time thanks to perpetual contact is the most highlighted point.¹⁷⁰ In this sense, mobility is organized “on the ground”¹⁷¹ and, very often, beyond the strict objectives of the trip (to visit a client, etc.), the worker takes advantage of certain situations and try to complete particular pending tasks. This includes making calls or going on with some practical and limited business when there is some available time between two programmed activities.¹⁷² All these activities are done despite the fact that access to documents and information is, usually, poorer than when working in the home office.¹⁷³

¹⁶⁸ Perry et al. (2001).

¹⁶⁹ O’Hara et al. (2002)

¹⁷⁰ Laurier (2002)

¹⁷¹ Laurier (2002, p. 47)

¹⁷² Laurier (2002); Perry et al (2002).

¹⁷³ O’Hara et al. (2002)

In this sense, a future desirable situation is the one described in the next quotation:

The aim of mobile working is to allow staff to access a range of systems and services whilst they are away from the office –but without the restrictions of wire.¹⁷⁴

Nevertheless, this is not the present situation, although it is improving day by day thanks to new technologies of information and communication and, particularly, thanks to the design of devices that allow flexible ways of gaining access to e-mail and to other documents in a more casual way than a laptop enables¹⁷⁵. In this sense, it should be highlighted that WiFi hotspots in airports and hotels are already helping networking, as also are PDAs and multimedia mobile handsets, although it should be taken into account that different environments guarantee different levels of privacy and, thus, some activities are not going to be performed, for instance, at an airport lounge.¹⁷⁶ In general, it should be stated that mobile professionals cannot easily deal with the information they routinely process at their desktops.¹⁷⁷

The mobile telephone brings access and availability to others: Not only clients or providers, but also work colleagues. In this sense, it is instructive to see how awareness and coordination are managed through mobile telephony when a staff member is not at the home office. In this sense, mobile telephones are heavily used as a tool for “checking-in” -brief conversations that apparently serve the primary function of making sure both parties are “OK”, along with some brief discussion of status or progress.¹⁷⁸ Callings at the end of the day are commonly done because the mobile telephone also helps to avoid the feeling of isolation that some commuting workers can have.¹⁷⁹

There is also one point to be highlighted in relation to ubiquitous mobile telephony and work. Perpetual contact means that you can be located whatever the hour of the day it is and wherever you are. This, indeed, has created some problems because the boundaries between private life and working activity have been broken leading to a point in which “*the mobile phone is blamed in the loss of leisure*”¹⁸⁰. In this sense, private life can invade the working environment without passing

¹⁷⁴ Watson and Lighthfoot (2003, p. 348)

¹⁷⁵ O’Hara et al (2002)

¹⁷⁶ Despite the fact that airports are important places of work, as stated by Breure and van Meel (2003).

¹⁷⁷ Sherry and Salvador (2002, p. 114)

¹⁷⁸ Sherry and Salvador (2002, p. 116).

¹⁷⁹ Sherry and Salvador (2002); O’Hara et al (2002); Perry et al (2001).

¹⁸⁰ Katz and Aakhus (2002, p. 8).

through any control or surveillance, directly calling the person you want to talk with. In a symmetrical way, a call from the office can be received despite the hour and the context in which a member of the staff could be. Again, it is just necessary to call directly the person with whom one wishes to talk. In practical terms, this non-barrier availability leads to some real tensions¹⁸¹ between the two spheres of life.

Wireless technologies also serve for the establishment of new channels of surveillance at work. In this sense, location awareness devices are introducing new ways in which task performance can be controlled; as for instance tools devoted to control and tracking of distribution fleets. These wireless technologies get us back to the “assembly line”¹⁸² model in which every activity of the worker can be controlled and timed.

What is more, location awareness functions, which with more frequency are being embedded in mobile devices, are also being incorporated into **motor vehicles**. Thus, GPRS and Bluetooth technologies are also arriving to the final user not only through the telecommunication market, but also through other more traditional markets. Indeed, transportation itself is starting to change and, following technical literature on the field, new communications technologies will lead great transformations in the future¹⁸³ The whole set of technologies has been named **intelligent transport system** and includes, mainly, the next aspects concerning long and short commuting¹⁸⁴: travel information and planning, both before and during the trip; traffic management, in order to avoid road collapses in specific areas that nowadays are problematic; improving transportation for the elderly and people with disabilities, making it more accessible for them; freight and fleet management; electronic fee collection in motorway tolls and other situations; transport safety, including intelligent speed adaptation and driver monitoring; and emergency and incident handling, with the objective of giving response to critical situations in order to keep dangers under control and, also, maintain the good conditions of traffic.

In this respect, it is worth pointing out that the development of the telecommunications market is more rapid than the vehicle market, because a motor vehicle has a longer life cycle than any of the

¹⁸¹ Sherry and Salvador (2002, p. 118).

¹⁸² Laurieer (2002, p. 50).

¹⁸³ Chen and Miles (eds) (1999); European Communities (2003).

¹⁸⁴ European Communities (2003).

wireless devices available nowadays. This indeed, is one of the reasons for the delay in the adoption of wireless technologies in the field of transportation.

Some examples of projects based on this technology, and developed with EU support, are the first European vehicle that made its first experimental trip on 2004¹⁸⁵ or the unsuccessful attempt to introduce a satellite-based toll management for the Germany motorways¹⁸⁶.

Nevertheless, mobile telephones are used inside motor vehicles provoking **negative health consequences**. This well known aspect of wireless communication is causing frequent **car accidents**. It has been stated that the illegal use of handsets while driving is justified because time expended at the wheel is perceived as lost time, and thanks to perpetual contact it can be used in a more utile way.¹⁸⁷

Another important negative element that mobile telephony has supposedly brought is related to **radio waves emission**. Radio waves are necessary to support all kind of wireless communications and they are produced both by handsets and by telecommunication antennas that have proliferated during recent times. In this sense, it must be said that the published literature results are controversial in so far as different medical studies show contradictory results. Following Sánchez et al (2001), there is no clear evidence about the epidemiological consequences of radio frequency emissions in the short term; but the authors also highlight the fact that there is a lack of information on long term consequences. Indeed, the authors also state that in relation to population studies, the only clearly established risk from an epidemiologic point of view is that of traffic accidents, which are not related to radio waves exposition.

Some attention must be given to complaints about the installation of some antennas in specific places. Despite the existence of social movements against them, different authorities tend to decide in favor

¹⁸⁵ <http://www.laflecha.net/canales/ciencia/200406161/> (News published: 06/16/2004)

¹⁸⁶ <http://www.diariodenavarra.es/edicionimpresa/noticiaB.asp?not=A12ART112209A&vin=&seccion=economia&dia=20040302&vf=> (News Published: 03/02/2004).

¹⁸⁷ Ling (2004)

of the telecommunication companies because radiation levels are under the legal limits established by laws.¹⁸⁸

The development of wireless technologies will be also conditioned by some **technological risks** that already exist in the computer world. In this sense, it has to be taken into account that transmission of data is, nowadays, related to **worm and virus** attacks. Smartphones that allow this kind of communication, or even have embedded specific software, are exposed to this hazard. At the moment, it has been already reported that some Bluetooth handsets have been affected by a benign worm called “Cabir” and one article offers there advice about the subject:

The possible use of smartphones to provide a way into office networks is of real concern when considering that phones do not enjoy the same kind of virus protection from software as PCs do. And these phones will be connected to PCs regularly for synchronisation, a real risk to enterprise networks in terms of both cost and confidentiality.¹⁸⁹

Apart from viruses and worms, and following the same path as the electronic mail, there is the problem of **junk messages**¹⁹⁰ that, with the development of the mobile entertainment market, could reach the same problematic levels as exist in the wired computer world. The next paragraphs, indeed, are dedicated to the mobile entertainment sector, which is indeed one of the main rising markets within the telecommunications world. This successful evolution that is currently taking off will be dependent on the establishment of the suitable controls and norms that, in some sense, should have been learnt from the wired-computer experience.

Entertainment is a fundamental dimension of the media world. However, it is a new reality when applied to telephony. The notion of telephone entertainment was very rare, and restricted to pornographic activities or, even, fortune-telling services. Thus, the emergence of mobile entertainment signals a substantial difference between mobile telephony and traditional telephony. Indeed, with the incorporation of Internet access, and the fast development of audiovisual capabilities

¹⁸⁸ Some information related to Spain and Europe in this field can be found at the Spanish Association of Mobile Communications webpage (www.aecom.org). For a more general scope information could be found at the Wireless World Forum webpage (www.w2forum.com).

¹⁸⁹ (August, 3, 2004) “Bluetooth virus reveals the vulnerability of the mobile phone”. News published by Visiongain (www.visiongain.com), available at

http://newsweaver.co.uk/ewirelessnews/e_article000287464.cfm?x=b3mRIKJ,b2cD3NFD

¹⁹⁰ MGAIN (2003a); MGAIN (2003b)

in the mobile communication devices, **mobile entertainment (ME)** is a key new area of business, technology, and social practice, an area on which we still have very scant, reliable information, beyond the usual hype.

Indeed, when talking about ME we are referring to

(...) entertainment products that run on wirelessly networked, portable, personal devices. “Mobile Entertainment” is a general term that encapsulates products like downloadable mobile phone games, images and ring tones, as well as MP3 players and radio receivers built into mobile handsets. The term excludes mobile communications like person-to-person SMS and voicemail, as well as mobile commerce applications like auctions or ticket purchasing.¹⁹¹

It includes mobile gaming; media content consumption (icons, ring-tones, music, images, movie clips, adult services, gambling, etc.); chat; information services (events, weather news, etc.); and location based services such as “where is my nearest”. The concept, indeed, covers those services that bring extra profit to companies (content creators and/or telecom) and excludes peer-to-peer communication, which is in fact the main function of any phone.

1997 was an important year in the history of mobile entertainment, as it was when Nokia first released the game of Snake for free, embedded in their mobile phones.¹⁹² It was a success thanks to its features¹⁹³: it was affordable (free, in fact) and accessible if you had the proper device; it was appropriate for young users; it was easy and fun play; and finally, it also gave utility to the final user (killing time, competing with peers, etc.) beyond the communicational function (convergence of uses).

Nevertheless, some of the applications that were envisaged as most promising turned out to be failures. A case in point was the defeat of the e-book. A reason for this could very well be that printed books were already mobile, so there was no need for a more expensive alternative with very few positively distinguishing features.¹⁹⁴ This illustrates a fundamental point in our analysis: new

¹⁹¹ Booz, Allen and Hamilton (2003, p. 2)

¹⁹² MGAIN (2003a, p. 13):

¹⁹³ Following Moore (2003), there are 7 factors conditioning and shaping the entertainment uses of mobile communications: 1) Access and affordability; 2) Age and context appropriateness; 3) Clarity of payment; 4) Compactness and coolness; 5) Complexity; 6) Convergence; and 7) Fun and usefulness.

¹⁹⁴ MGAIN (2003a, p. 14)

technologies are not adopted because they are new, but because they make possible new uses, and new services that would be unavailable or more difficult otherwise.

Indeed, entertainment is quickly becoming an important function of mobile communication¹⁹⁵. This trend is largely technology-driven, as manufacturers learn to pack more capacity in the device, and as providers are eager to offer new services and products to expand the market.¹⁹⁶ The fact that the young population constitutes the fastest growing segment of mobile communication users favors the entertainment function, as this is precisely the social group more predisposed towards entertainment.

However, the entertainment function does not cancel the other uses of mobile communication devices.¹⁹⁷ Work-related activities and personal interaction continue to be paramount in the uses of mobile phones. Thus, rather than moving toward a domination of the entertainment function, what we observe is the growing multipurpose functionality of mobile communication devices.¹⁹⁸ It is the ability to switch from work to sociability and to entertainment in the same time and space that characterizes the new communication system. The user-centered structure of the communication network means that all these dimensions of life are constantly installed in the practice of the individual, and that it is his/her choice or availability that determines the exact mix of various practices integrated in the mobile communication device. It follows that the most successful devices will be those whose technology, and feeder services system, allow the user the maximum range of choice and mixing of the various functions. This explains the importance of having enhanced image and audio processing and transmission capacity. Mobile communication devices are the multipurpose, multi-channel connecting points of the network of communication of which everybody becomes a personal node. It follows that entertainment is not a specialized function, but an optional practice integrated in the time and space of the overall range of social practice. The spatial and temporal separation between work and leisure is cancelled by their coexistence in the mobile communication networks.

¹⁹⁵ In this sense, Moore (2003, p. 65) found in his fieldwork that “*The use of mobiles has become a leisure activity to rival others in contemporary social life*”.

¹⁹⁶ In Europe, by 2001, the most successful service was ring tones (estimated revenues of US\$1,666 million) followed close behind by mobile games (US\$830 million revenues). The more aggressive European markets are Scandinavia, the UK and Italy. Market analyst reports are still forecasting multi-billion dollar industries for mobile games, mobile music and other forms of mobile entertainment. Source: Weiner (2003).

¹⁹⁷ Moore (2003)

¹⁹⁸ An interesting branch nowadays developed is the convergence of communication devices under good usability constrains/patterns. (Heilman and White, 2003)

The use of mobile devices for entertainment purposes is also affecting the entertainment industry, as products are newly packaged for their consumption in the new format. This repackaging is both cultural and technological, and is highly related to the adoption process¹⁹⁹ of mobile communications. And, of course, major names such as Disney or Sony Corporation are now directly entering the mobile space, as well as licensing brands, titles and artists for use in the mobile space.²⁰⁰

Final developments, in any case, will depend on sector regulation²⁰¹, taking into account that those regulations affect both contents and final prices of the entertainment services provided through the mobile telephone. With regards to content regulation, and despite doubts about what sort of content is going to be delivered using mobile telephones, it should be highlighted that there is expected to be an important growth of a mobile adult services sector based on text and image contents.²⁰² Apart from regulation, other hurdles this sector will likely face are device limitations, spam and public perception.²⁰³

It is worth pointing out that when evaluating the development of mobile entertainment we are talking, in fact, of the development of a market of superfluous services. Assuming the hypothesis that final users have constant budgets, it follows that consumers will have a high price sensitivity to mobile entertainment services as long as they have to make a choice between other established expenses and the new paid-for activities than can be done through the mobile telephone.

It seems that, at the moment, there is some empirical evidence that supports the hypothesis of substitution among entertainment goods and services. It seems, specifically, that an observed decline in teenage smoking is correlated with mobile telephone ownership, as reported by Lacohee et al (2003). There was a sharp decline in smoking among British boys and girls aged 15 in the late 1990s during which time mobile telephone ownership sharply increased. And, among other reasons, the authors highlight that mobiles consume teenagers' available cash, particularly topping up pay-as-you-go cards.²⁰⁴ Thus, under a general scope it should be interesting to study the characteristics of the

¹⁹⁹ Skeldon (2003); Weiners (2003).

²⁰⁰ Wiener (2003).

²⁰¹ Wiener (2003); Skeldon (2003).

²⁰² Skeldon (2003).

²⁰³ Ibid.

²⁰⁴ Lacohee et al. (2003, p. 208). Quoted sources: (1) Office for National Statistics: 'Drug use, smoking and drinking among teenagers in 1999', London, ONS (2000); and (2) 27 Charlton A and Bates C: 'Decline in teenage smoking with rise in mobile phone ownership: hypothesis', *British Medical Journal*, 321, p 1155 (2000).

demand function of these services and, also how personal telecommunications budgets have evolved in recent years.

Summing up, as has been seen throughout this section, mobile telephony has become an integrated technology in the everyday life of European society. In this sense, it is worth highlighting the next quotation, referring to final users and, indeed, to citizens:

The difference between mobile and non-mobile service users is the heterogeneity of mobile users: they are from all age groups and both sex –compared to web users, who are typically young, well paid men.²⁰⁵

In this sense, it must be highlighted that the popularization of mobile telephony has led to a situation in which **final consumers** have started to **complain** about the cost of this means of communication. Different ways of protest have developed. Some people claim not to use the mobile telephone during a whole day, as in Italy or in Spain, with the aim to give a message to telecommunication companies on the matter. In France, for instance, similar protests led to a reduction in the SMS prices was reached in 2004.²⁰⁶ Those kinds of demands, which are mostly promoted through the Internet, find their justification in the fact that the mobile telephony is perceived as a necessary technology. Of course, in the early stages of the development of this technology, when a mobile telephone was a device only for wealthy people, there were no mobilizations of this kind in Europe.

Another kind of social action related to mobile technology is the **Freewireless movement** that is emerging around Europe. Different communities create areas of Free WiFi connections in some specific areas of the city. These kinds of initiatives can be found both in big cities and in smaller towns and their aim is to facilitate the creation of independent networks, costless and free for public access. There is an international movement related to these wireless communities.²⁰⁷ According to information published by NodeDB, there are 4567 nodes in Europe. A node is a hotspot that brings wireless access to the Internet and the leading countries in the development of this infrastructure are Greece (3111), followed by Spain (821), Germany (188) and France (152).²⁰⁸

²⁰⁵ MGAIN (2003^a, p. 37).

²⁰⁶ Source: <http://www.textually.org/textually/archives/002427.htm>.

²⁰⁷ See <http://www.nodedb.com/europe/>

²⁰⁸ Source: <http://www.nodedb.com/europe/> (September, 2004).

This social movement has the support of some local authorities, despite the legal problems that they actually have because of the free access they give to the Internet and, in this sense, some Spanish city councils have been processed²⁰⁹. We are talking about little towns that are usually aware of the development of the Information Society in their community and are used to helping local initiatives in this field.

As part of the elements that characterize the current mobile society in Europe, we believe that it is necessary to take a look at the recent past and draw a retrospective perspective on the early mobile society.

3.1.3. The Early Mobile Society in Europe: A Retrospective Perspective

Despite the short history of mobile diffusion, Europe differs from most other parts of the world in that it has gone through several stages of diffusion to reach an average penetration rate of more than 70%. Section 1 has discussed this diffusion pattern. In this section we will focus more on the social uses of mobile phone in earlier stages especially with regard to social perception and acceptance of wireless communication in Europe.

First of all, it must be highlighted that even the name given to the technology has changed from “cellular” to “mobile”:

The personalization of mobile telephones was also evident in the evolution of their names in English-speaking countries. In the 1980s and early 1990s the commonly accepted name for these devices was the wireless or cellular telephone. Wireless differentiated these new devices from traditional wire-line phones, while cellular was derived from the geometric structure on the antenna grid that linked these devices into terrestrial telephone systems.

The mass diffusion of mobile telephones in industrialized nations during the second half of the 1990s coincided with a decisive shift away from the cellular designation towards the use of the term mobile telephone. This indicated a broad shift in cultural perceptions and marketing campaigns from a view where the technological innovation was seen to be in the

²⁰⁹ Sources: <http://iblnews.es/noticias/05/107107.html>; (Published: 05/07/2004); http://www.consumer.es/web/es/noticias/nuevas_tecnologias/2004/05/06/99675.php (Published: 06/07/2004)

supporting infrastructures (cellular) to one where the intelligence is embodied in the device itself (mobile). And unlike linking oneself in one's mind to some complex and constraining grid of antennas, the idea of augmenting oneself with a tiny, smart device was very appealing.²¹⁰

This change in the name given to the device coincides not only with the popularization of mobile telephony but, also and more importantly, with its general social acceptance. In this sense, it can be affirmed that the process of acceptance of this technology has been over-passed mainly within some European cohorts²¹¹. Thus, the ambiguous discourse created over the mobile telephone is not used anymore and in the next passage, the conclusion of a fieldwork done in late 1990s, should be placed in its time context in order to avoid contradictions with what has been seen up to this point in our discussion:

A paradoxical conclusion of this study is that ICTs are not explicitly perceived as solutions to the communication and co-ordination problems (...) in everyday life, although they are being used for solve these problems.²¹²

This old-fashioned discourse included, among others, the perception that wireless telephony threatens the home privacy and causes communication overload. What is more, Frissen's (2000) findings indicate that people do not want to be accessible all the time, not only because of a general reluctance on the matter but also as a way of maintaining the boundaries between private and working life. The following quote is of especially great significance as because it belonged to a man with a high technological profile:

But why would you need a cell phone for private communications?²¹³

Indeed, in 1999, a mobile telephone user was often an Internet user²¹⁴; and "perpetual contact"²¹⁵ was not seen as something essential. This idea could be found among different age ranges but mostly in

²¹⁰ Townsend (2001, p.69).

²¹¹ Especially in those countries in which penetration rates are beyond the 80%.

²¹² Frissen (2000, p. 65), referred to The Netherlands.

²¹³ Frissen (2000, p. 72).

²¹⁴ As observed, for instance, in The Netherlands by Mante (2002, p.111).

²¹⁵ Katz and Aarhus (2002).

the case of older people²¹⁶ and, also, among parents when negotiating the purchase of a mobile telephone with their children²¹⁷.

Perception of what was an appropriate or inappropriate use of the device was conditioned by the fact that not so many people owned a handset; therefore some discretion was expected from users. In fact, early studies report that it was usual to find that public use of mobile telephones was perceived as a way to draw attention on oneself. In this sense, the next quotation referring to The Netherlands, 1999, is very illustrative:

They want to be reachable but they definitely want to stay in control –no cell phone calls in improper places and at inconvenient times. They view a person who is called on a mobile phone in the street, in a shop or on public transport, not as someone with business to do but someone who wants to show off the mobile phone.²¹⁸

There are two remarkable points in this citation. First one refers to etiquette. Basically everybody nowadays will agree that mobile telephones should be “under control”, but what evidently has changed is the definition of the concept and, in this sense, the second point goes directly to the identification of acceptable/non acceptable behaviors. Indeed, this line of the plot could also be seen in other sources both for The Netherlands²¹⁹ and other countries as, for instance, Bulgaria²²⁰ or Norway²²¹.

At present, the mobile telephone has become an essential element in the definition of teenagers’ identity. An evolution in this field has also been described for Norway. So when mobile telephony was a phenomenon of the working adult world, there were debates about the appropriate age for an adolescent, or even a child, to be given a handset²²².

²¹⁶ Mante (2002).

²¹⁷ Ling (1999).

²¹⁸ Mante (2002, p.118).

²¹⁹ Frissen (2000).

²²⁰ Varbanov (2002, p. 132).

²²¹ Ling (1999; 2000; 2001).

²²² Ling and Helmersen (2000).

Afterwards, the discourse changed and children asked for a mobile because almost all their classmates had one.²²³ By that time, trying to place the use of the mobile telephone into a functional context was no longer an appropriate approach to the subject. Indeed, generalization of handsets among teenagers was not a question of need, but a part of the personality kit. What is more, having an “incorrect” device, that is a big, ugly handset, would result in the necessity to hide it from peers or, at least, start a homemade personalization process, even painting it.²²⁴

Available literature reports that there was, indeed, some ideology involved in the ownership of a mobile.²²⁵ Having, or purchasing a mobile telephone needed justification, and both ownership and non-ownership helped in the creation and establishment of identity²²⁶. Always taking into account the necessary nuance related to the penetration rates of mobile telephony among different European countries and among specific population cohorts, it can be stated that nowadays the only ideological justification that is now needed is related to the non-ownership of a handset, leading to a situation in which

Non-ownership of a mobile telephone has become an identity as important as ownership.²²⁷

Some reluctant attitudes towards mobile telephony were changed after few weeks of ownership of a device. In this sense, it can be stated that the personal domestication process has involved the whole society. Thus, we can say that there has been a “social domestication process”. Within this focus, a parallelism with wired telephony, or even TV sets, could be done as long as, in some sense, what is usual is to have it or, at least, to have access to it.

With regards to the personal domestication process, it must be highlighted that once the technology became a part of the person’s everyday life, the use given to the mobile telephone appeared to be different from the original reasons that had justified its purchase.²²⁸ So then, safety and security reasons, or even coordination reasons, evolved into other functions already studied in this text²²⁹.

²²³ Ling (2001).

²²⁴ Ibid.

²²⁵ Ling (1999); Frissen (2000).

²²⁶ Ling (1999); Ling and Helmersen (2000).

²²⁷ Lacohee et al (2003)

²²⁸ Frissen (2000).

²²⁹ See Sections 3 and 4.

Summing up, we have seen that the rapid popularization of wireless technology has produced a fast change in its perception. In this sense, and although some reluctance still can be observed, the spillover of this wireless technology -which originally was a working tool²³⁰- to the whole society has created the introduction of a new commodity in the European everyday life. This commodity follows fashion trends and, unexpectedly, acts as a main element in the teenagers' identity definition process.

3.1.4. Summary: Europe

Throughout this section we have seen how mobile telephony is used in the European society, especially -but not only- among final users. In this sense, we can state that the extensive diffusion of mobile telephony is due to the affordability of the system, both in terms of money and in terms of learning costs for the final user, and also to a propitiatory technological planning that created a compatible system for the whole continent.

With regards to everyday life, we have seen how the dynamics of the family have welcomed mobile telephony. Indeed, some behaviors have been adapted –and, also improved– thanks to the access to that technology. When moving into the working world, we have also seen that perpetual contact enabled by mobile telephony has led to a redefinition of the boundaries between home and work. Both worlds have become mixed because of the creation of a direct line made possible by the mobile telephone, that personal device that every person uses to carry always on.

Mobile telephony, in addition, has allowed the establishment of new ways of surveillance at work that were previously unknown in the service sector. And, what is more, this technology has helped to increase productivity at work despite the fact that some improvements are still required, because devices do not currently allow access to the same information available when working in the “home office.”

Other aspects of everyday life that have been analyzed are the entertainment mobile market, which is expected to grow rapidly over the coming years; and, among others, the negative aspects of mobile communications. Those negative aspects range from car accidents to health problems. Car accidents are expected to be reduced in the future, thanks to the introduction of intelligent transportation

²³⁰ Agar (2003); Lacohee et al (2003); Ling (2004).

systems. On the other side, health hazards are not clear at the present time. The point, in fact, is that there is not any conclusive result with regard to future effects of the radio waves emitted from wireless communications devices. Related to the negative aspect of the mobile technology, it is worth mentioning that, as has been already proven, viruses, worms and junk mail will also be present in the mobile world in what seems to be a replication of the Internet and wired computer environment.

The popularization of this technology has changed its social perception and complaints about the price of mobile telephony appeared in different European countries. Some of those protests were called through the Internet, following the path of other social mobilizations.

Finally, we have also examined how the social perception of mobile telephony has rapidly changed. Diffusion of wireless technology, as in the case of other NICTs, is occurring rapidly. The big difference with respect to other technologies is that mobile telephones are reaching almost all of the European society. It is in this context that an approach of this kind makes sense because all the adult population, and almost all the youth, can remember how it was to live without a handset in the pocket. Of course, most of them also remember themselves criticizing mobile telephony at the same time that, and not in contradiction to their beliefs, they depend on their mobile phones in such a manner that if it fails, they feel disconnected from their social network and, therefore, lost.

3.2. THE UNITED STATES

The most noticeable aspects of wireless communication in the U.S. are the relatively low penetration levels of wireless telephony and data networks, as well as the absence of a significant body of academic research on the topic, especially its social aspects. These two factors could be related as scholars may find the rapid developments in Europe and Asia more interesting to observe than the slow movement in the U.S. The lack of scholarly attention to the social aspects of wireless communication has been noted by a number of researchers.²³¹ Some of the few scholars who have addressed the significance of mobile telephony in particular have suggested that the domestication of the technology may have led researchers to ignore its critical contribution to society. For example, Larsen notes:

The mobile phone seems to have inherited from the landline telephone a lack of interest by social scientists. Few studies are concerned with this technology. As with the old phones, mobile phones' quick acceptance and "naturalisation" are the reasons given to explain this oblivion. Radio and cinema yesterday, and the Internet today, are more spectacular and exciting subjects for scholars.²³²

This seems to be especially so in the U.S. and represents a glaring gap in the research field. In this section the discussion will focus on what available studies and media reports tell us about adoption patterns and uses of various wireless communication services in the U.S.

The story of wireless communication in the U.S. is really a story of laggard development. Despite the long history of wireless technology in the country, it appears to be still in the early stages of the wireless society, especially when compared to other developed countries. Plant notes that although cell phones, for example, are common in the U.S., "they appear to have made far less of an impact on the cultural consciousness of America itself."²³³ Current developments in the economy indicate that the tendency is for the industry to develop according to trends observed in Europe or Asia. For example, recent efforts by industry operators to target the youth market are based largely on observations of the extraordinary adoption rates amongst youth in European and Asian countries.

²³¹ E.g., Katz (2003a); Larsen, (n.d.); Robbins and Turner (2002); and Wei (2004).

²³² Larsen (n.d. p.31).

²³³ Larsen (n.d. p.28).

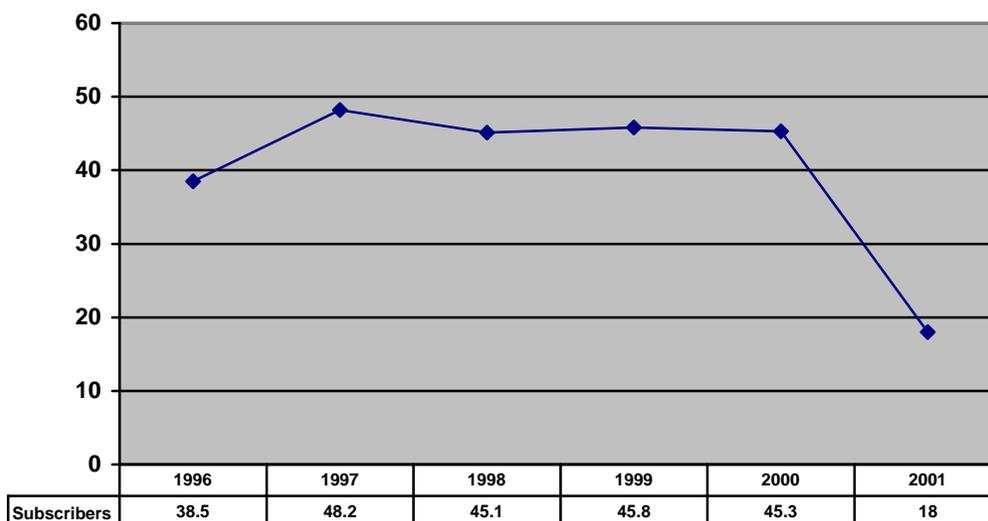
Industry analysts basically hope to replicate those results in the U.S. where falling growth rates suggest that the general market is reaching saturation point.²³⁴ Thus, most of the characteristics of the industry are miniature versions of what has already occurred elsewhere. As a process in its early stages, it is not possible to say where these developments will ultimately lead, whether to similar outcomes as in Asia and Europe, or to something quite different.

A variety of wireless communication devices have found a place in American social and corporate life. These devices offer different capabilities in terms of access to information and to other people. The following discussion will briefly assess the extent of usage of these devices and their applications, starting with the pager, then the cell phone and then wireless data devices.

3.2.1. Pagers

Although the pager industry has been adversely affected by the cellular phones, there is still a loyal market for this service, mainly because it is cheaper, less conspicuous, has better coverage and allows users greater control over whom they communicate with.²³⁵ Thus, despite the decline in subscribers, (Figure 31), revenues from pager sales increased by 17.2% between 1998 and 2002.²³⁶

Figure 31. U.S. Pager subscriptions (1996-2001)



Source: FCC annual reports. Available at www.fcc.gov/wcb/stats

²³⁴ Henry Fund Research (2003 and 2004); Noguchi (2004); Wilson and August (2003).

²³⁵ Euromonitor (2003).

²³⁶ Ibid.

Before cell phones began to take over, pagers were a popular means of wireless communication for both business and consumer markets, and played quite a significant role in people's lives, not much different from that of the cell phone today. As a possible foreshadowing of the central place cell phones would come to occupy in everyday life, a study found that the pager had become a central aspect of people's lives such that they grown accustomed to organizing their activities around it.²³⁷ Thus, during the Galaxy IV blackout that interrupted 90% of pager users, most owners said they missed their pager and considered it an integral part of their routine existence, even if they did not like it. Dutton et al. found that for work purposes, the pager enabled people to be reachable by employers and prospective clients, while for personal purposes, the pager made it easier for people (such as parents) to manage mobile lifestyles. This is similar to the functions the cell phone is playing today, though in an enhanced form and with additional capabilities. In fact, the U.S. pager industry is trying to re-conceptualize this device by imbuing it with advanced cell phone-like capabilities such as numeric and text paging and two-way messaging that allows users to send and receive email.

3.2.2. *Wireless phone*

Cell phones have gradually taken over the role of pagers in American society. About two-thirds of U.S. households (64.3m households) own at least one wireless phone²³⁸ and 58% of Americans aged 12 and above own a wireless phone.²³⁹ Usage of wireless phones is increasing – the average subscriber uses 490mins/month compared to 480mins/month for wireline usage.²⁴⁰ Nevertheless, the fixed household line continues to be important. Rodini, Ward and Woroch have found that while wireless phones are not substituting for main wireline phone²⁴¹s, they are increasingly being used to substitute for second fixed lines.²⁴² An estimated 3% - 5% of Americans use a cell phone as their sole phone, while 20% of Americans view their mobile phones as their primary phone.²⁴³ FCC data on additional lines support this finding (Figure 32), showing that the number of households with a fixed line is still increasing but households have been getting fewer additional lines since 2001. A survey found that only 3% of cell phone owners had cancelled their main line after getting a wireless phone and only 21% of those who had not cancelled had very seriously or somewhat seriously

²³⁷ Dutton, Elberse, Hong and Matei (2001).

²³⁸ FCC (2002).

²³⁹ Genwireless (2001).

²⁴⁰ Sundgot (2003).

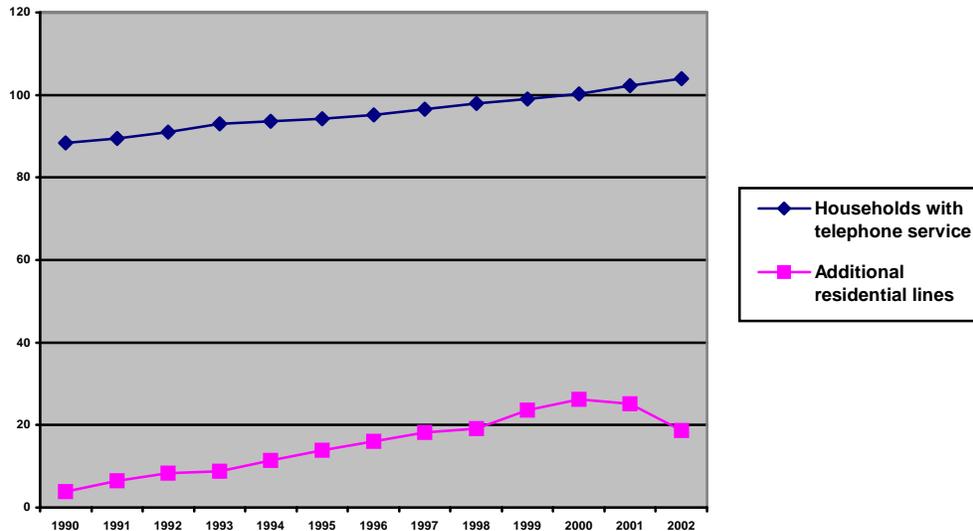
²⁴¹ Rodini, Ward and Woroch (2003).

²⁴² Although young people are more likely to substitute cell phones for the first line. See Greenspan (2003a).

²⁴³ Alden (2002).

considered it.²⁴⁴ So far, we have not come across any research that tried to find out why people are still attached to their first landline.

Figure 32: Additional residential lines for U.S. households (End of year data in millions)



Source: FCC (2004, p.7-6). *Industry Analysis and Technology Division Wireline Competition Bureau May 2004*. Available at www.fcc.gov/wcb/stats.

The main reasons for using a cell phone, according to research conducted for Cingular Wireless (2003), are convenience (60%), and safety (21%). This is supported by empirical research, which found that most people had cell phones in order to be able to deal with emergencies.²⁴⁵ However, it is also a fact that once the cell phone is acquired, other use considerations come into play. Thus Wei additionally found that people who social calls were the primary activity (double that of work-related calls) and other activities such as playing game, text messaging and surfing the web, followed by emailing, were prominent. Use of the cell phone first for voice calls tends to activate other uses, thus effectively turning the cell phone into a mass medium.²⁴⁶

²⁴⁴ Pew Internet and American Life Project (October 2002).

²⁴⁵ Wei (2004).

²⁴⁶ Ibid.

3.2.3. *Wireless Data*

The use of mobile data applications is low, but growing in the U.S.: 3.4m users in 2000, 9.5m users in 2001 and an estimated 23.4m users in 2002.²⁴⁷ A recent survey by In-Stat/MDR found that 54% of respondents are using some form of wireless data service and that there is little difference demographically between users and non-users, indicating that wireless data usage is becoming more mainstream.²⁴⁸ In the U.S. the most prominent methods of accessing wireless data are via PDAs, Blackberries (especially in the corporate world) and laptops. Internet access via cell phone is yet to find a significant market in the U.S. For instance, in 2002, ComScore Media Metrix reported that although Internet users own more cell phones than PDAs, more PDA owners than cell phone owners use their devices to go online.²⁴⁹ In the meantime, the Pew Internet and American Life Project (May 2004) reports that 28% of Americans are wireless ready, that is, they own a wireless device that can be used to access the Internet. However, only 17% of Americans have actually gone online wirelessly, according to this research. Young people were found to be more likely to have wireless capable communication devices.

For the U.S. population, the wired PC is still the primary means of accessing the Internet for information and communicative purposes.²⁵⁰ Both awareness and interest in the wireless data has been low. For example, 89% of respondents in a 2001 survey said they were “unaware” or “poorly informed” about wireless Internet technology.²⁵¹ The corresponding figure for the UK was 86% and for Germany was 54%. Furthermore, Americans have shown low interest in the wireless Internet – on a scale of 1 to 6 U.S. respondents in a survey rated their interest as 4.3 for emailing, 4.2 for accessing city maps, and 4.0 for getting the latest news.²⁵² NTIA data shows that in 2001 while wireless Internet access was rising, most users also had wired Internet access.²⁵³ The wireless Internet, then, is a supplementary service for most Americans unlike other countries where it may be the primary or only means of accessing the Internet. Considering the relatively low diffusion of the wireless Internet, it is interesting then to see how Wi-Fi installations are expanding across the country (see section below on Wi-Fi).

²⁴⁷ Entner (2003).

²⁴⁸ In-Stat/MDR (April 19, 2004).

²⁴⁹ Reuters, August 28, 2002.

²⁵⁰ NTIA (2002).

²⁵¹ Felto (2001).

²⁵² Ibid.

²⁵³ NTIA (2002).

Amongst those who do access the Internet wirelessly, most go online for personal purposes (83%), 49% also go online for work and 30% for school-related activities.²⁵⁴ Email is the top wireless Internet activity (Table 12). These variety of activities performed on the wireless Internet indicate that for users, the wireless Internet is becoming a tool for everyday routine activities.

Table 12: Top 10 Wireless Internet Activities by U.S. Wireless Internet Device Owners (2001)

Email	69%
Research	32%
Games	26%
News	25%
General entertainment	24%
Shopping/buying	21%
Sports scores	20%
Travel arrangements	19%
Stock quotes	19%
Paying bills	8%

Source: TNS (February 8, 2001). *New Survey Indicates Wireless Web Penetration Highest Among Young Affluent Males*. Available at <http://www.tns-global.com>

3.2.4. SMS

Like the wireless Internet, SMS use levels in the U.S. are quite low.²⁵⁵ Even now, in 2004, *New Media Age* states that the average American cell phone user has little idea what SMS is,²⁵⁶ which is surprising when one considers the popularity of the PC-based equivalent of SMS, instant messaging. Still, text messaging is now the leading mobile data service according to In-Stat/MDR and numbers are increasing.²⁵⁷ In 2002, 18 million mobile phone owners in the U.S. were using text messaging; in 2003, the number had risen to 27 million.²⁵⁸

Recent vigorous efforts by wireless phone operators to energize this market may be yielding results but conclusive data on this is yet to become available. Available data indicate large increases in SMS

²⁵⁴ Pastore (2001).

²⁵⁵ Harter (n.d.); Revolution (2003).

²⁵⁶ *New Media Age* (2004).

²⁵⁷ In-Stat/MDR (February 3, 2004).

²⁵⁸ eMarketer (2003).

traffic; for example, in June 2001 U.S. wireless phone users sent 30m text messages and in June 2002 they sent nearly 1 billion.²⁵⁹ Greenspan reports that more than one-third of U.S. wireless phone owners use SMS.²⁶⁰

A critical event in the history of SMS is the use of text voting in entertainment, dubbed the “American Idol effect.”²⁶¹ The American Idol reality show is credited with introducing SMS to the U.S. market and illustrating its superiority for voting purposes compared with using the voice telephone service.²⁶² During the first voting in February 2003, AT&T Wireless subscribers sent 50,000 SMS votes; during the final voting session in May 2003, subscribers sent 2.5 million votes by SMS.²⁶³ During American Idol’s third season subscribers sent 13.5m text messages to the program, including fan mail and votes.²⁶⁴ The recent attempts by defense council in the Kobe Bryant rape trial to introduce into evidence SMS messages sent by Bryant’s accuser, is a testament to the system’s entry into the mainstream.

Most people use text messaging to communicate with friends (73%), family (70%) and less frequently, with business contacts (26%).²⁶⁵ Trends in usage show how wireless technology enables people to make “productive” use of “downtime” as well as to subvert time that is supposed to be used productively (Table 13). The volume of usage in busy meetings and classrooms illustrate to the latter point. In fact some organizations have instituted no-laptop policies during important company meetings to address this²⁶⁶ and the Pew Internet & American Life Project²⁶⁷ anticipates tensions between students and professors as the wireless Internet expands into the classroom, just as has been the case with cell phones.

²⁵⁹ Trujillo (2003).

²⁶⁰ Greenspan (May 2004).

²⁶¹ In-Stat/MDR official quoted in 3G Americas, (n.d.), *Short message services for success*.

²⁶² Atkinson (2004); Wilson (2003).

²⁶³ 3G Americas (n.d.) *Short message services for success*.

²⁶⁴ Rodgers (2004).

²⁶⁵ eMarketer (March 4, 2003).

²⁶⁶ Boyle (2002).

²⁶⁷ September 15, 2002.

Table 13: Locations where Mobile IM is most Frequently Used

Crowded public transportation	36%
Sporting events	25%
Busy meetings	23%
Campus classrooms	22%
Hospitals	12%

Source: AOL and Opinion Research reported in Greenspan, August 27, 2004. IM usage nearly doubles. Accessed September 7, 2004 at <http://www.clickz.com/stats/markets/wireless/article.php/3400661>

As has been noted in other countries, text messaging has become a useful tool for developing and managing romantic alliances, by helping to remove the awkwardness that comes with some face-to-face situations. Thus, even in its early stages in the U.S. text message users are already using it in the dating game (Table 14)

Table 14: The IM Dating Game

The IM Dating Game	
Those who used mobile messaging for romance	31%
Those who used mobile messaging for flirting	25%
Those who accepted a date via mobile message	14%
Those who sent mobile messages while on a bad date	10%
Those who broke up with romantic partner via mobile message	3%
Source: AOL and Opinion Research Corp.	

Source: Greenspan, August 27, 2004. IM usage nearly doubles. Accessed September 7, 2004 at <http://www.clickz.com/stats/markets/wireless/article.php/3400661>

3.2.5. Characteristics of the US Wireless Communication Environment

3.2.5a Corporate vs. Consumer Market

As with most communication technology, wireless devices and applications were initially envisioned in the U.S. as business tools,²⁶⁸ and the industry has focused mainly on the corporate and upscale market.²⁶⁹ While in other societies, the consumer market has quickly discovered and adapted wireless technology to its purposes, in the U.S., this process has been slow. Indeed, wireless communication devices such as the cell phone, have acquired a professional image that has branded them as

²⁶⁸ Katz (1998); Standard and Poors (2003).

²⁶⁹ Colins (2000); Dano (2004); Noguchi (2004).

appropriate tools for business professionals and wealthy people. The mobile industry has invested time and effort in developing applications that meet the needs of this group, (e.g., for coordination of staff) while neglecting those that would be relevant to the general public. This image has only recently begun to change as the industry reaches out to the consumer market, but has still affected uptake as actual applications and marketing messages were initially not in tune with the consumer market.²⁷⁰ This also is changing now, as can be seen in current mobile phone commercials that emphasize the sociability aspects of the devices.

In view of this trend, it is not surprising that the corporate sector currently leads in the U.S. mobile market²⁷¹ although the consumer market is growing. In fact, it seems that U.S. businesses are more receptive of wireless communication services (especially wireless data) than firms in other countries.²⁷² For example, a study of Forbes.com users in Canada and the U.S. shows that 91% of Forbes.com users owned a cell phone as against 46% of the U.S. population.²⁷³ For business populations the benefits of wireless technology are often measurable in terms of efficiency and cost. Business users use wireless devices to improve their operations, e.g. a drug wholesaler uses wireless devices to track inventory and shipments, which resulted in an 8% increase in productivity and 80% reduction in incorrect shipments.²⁷⁴ An executive search firm in Texas halved the cost of connectivity by providing sales partners with wireless web access using PDAs instead of standard laptops; another Los Angeles legal firm cut laptop budget and dial-in cost by 30% by issuing Blackberries to attorneys.²⁷⁵ It should be noted however, that environmental conditions could limit the ability to organize and use information while mobile (e.g., access to a printer or furniture). Thus sometimes efficiency may be reduced by the absence of the “rich, command center-like environment that supports much of cognitive, social and communicative work associated with computing.”²⁷⁶

²⁷⁰ Direct Intelligence (2000); Perlin (2003); Robbins and Turner (2002).

²⁷¹ ISP Planet (2001); Revolution (2003).

²⁷² Sharma and Nakamura (2003).

²⁷³ Forbes.com (2002).

²⁷⁴ *The Economist* (October 13, 2001).

²⁷⁵ Medford (2001).

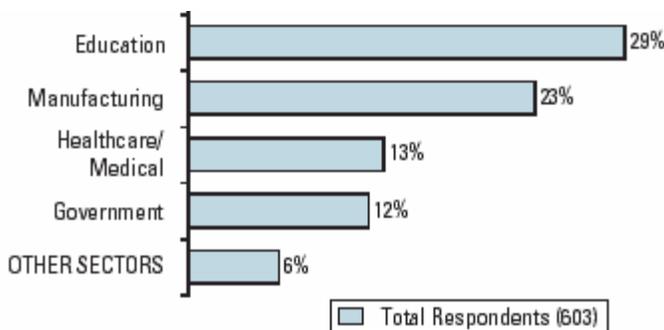
²⁷⁶ Sherry and Salvador (2002, p.114).

3.2.5b “Phone, No; Wi-Fi, Yes”²⁷⁷ – The spread of Wi-Fi in the U.S.

The U.S. has the highest number of 802.11 installations in the world, and a higher penetration of laptop computers and PDAs especially in the business community, but increasingly amongst students.²⁷⁸ In 2002 there were about 14,000 wireless hotspots in the U.S.

The significant amount of research and schoolwork conducted via wireless noted earlier (Table 12) probably points to large numbers of professionals and students using the wireless Internet. In Wi-Fi especially, educational institutions have the highest penetration levels (Figure 33). Fifty percent of public and private universities had WLANs in 2001, but by 2002 the technology was being used in 90% of the schools.²⁷⁹

Figure 33: Firmographic typology of organizations deploying WLANs



Base: All Respondents (603)

Reproduced from NOP Technology (2003, p. 4). 2003 Wireless LAN benefits study.

Wi-Fi consumers use it mainly for checking email (27%) followed by web surfing (21%), preparing presentations (19%), scheduling tasks and appointments (15%) and logging onto corporate intranets (12%).²⁸⁰ Comparing this to the general wireless Internet activities (Table 12) one can deduce that the Wi-Fi consumer is likely to be a professional or someone with academic information needs, such as a student. Apart from sending email, which is the primary function in both situations, the uses of Wi-Fi appear to be more work-related. On the other hand, as Wi-Fi extends into households, these uses

²⁷⁷ Newsweek June 7, 2004 article, *The Wireless World*. <http://www.msnbc.msn.com/id/5092843/site/newsweek/>

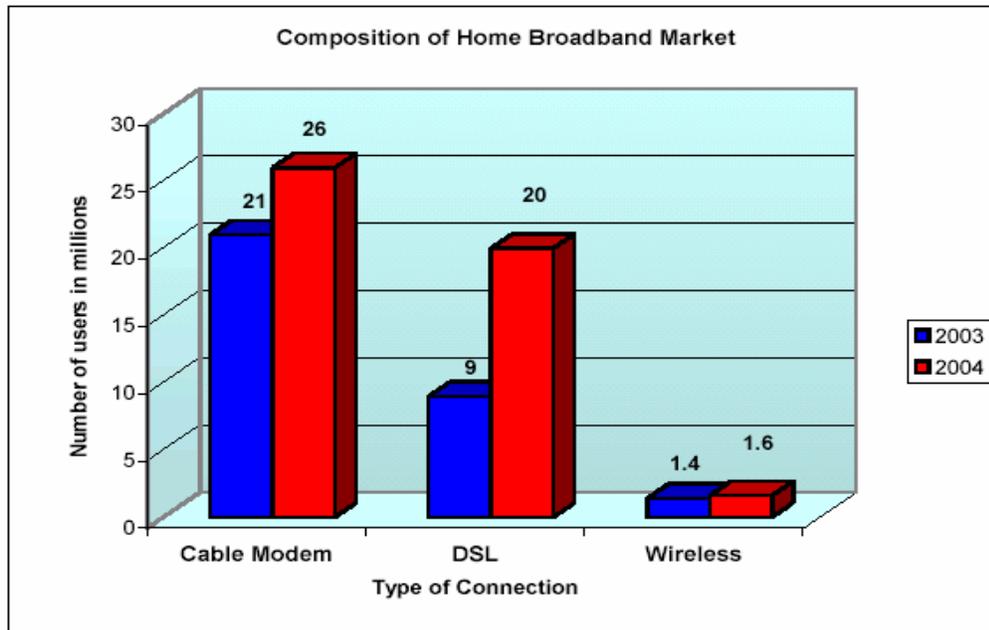
²⁷⁸ Sharma and Nakamura (2003).

²⁷⁹ Boyle (2002).

²⁸⁰ Maddox (2003).

may converge to be more similar to regular Internet use. As Figure 34 shows, wireless connections in the home are still low.

Figure 34: Household Wireless Installations, U.S. (2003-2004)



Source: Pew Internet & American Life Project April (2004, p.3). 55% of adult internet users have broadband at home or work. Pew Internet Project Data Memo.

An interesting aspect of the development of Wi-Fi in the U.S. is that while the industry is still trying to work out a viable economic model for providing Wi-Fi services, the technology is taking on a community-oriented character. According to research at the University of Georgia, there are 38 Wi-Fi clouds and 16 Wi-Fi zones throughout the U.S., most of which have been set up to enhance the value of communities rather than to generate revenue.²⁸¹ While not all public Wi-Fi systems are free, other communities have made it their objective to make it a free service. The warchalking phenomenon is an element that shows how attempts are being made to use the availability of wireless access to information to bypass economic organizations and enhance free access to information.

The extent of actual Wi-Fi usage is however, lower than expected. Studies by a number of research firms such as In-Stat/MDR and Jupiter Research indicate that visitors to various hotspot locations use them infrequently – less than six times a year (Biddlecombe, 2003). Jupiter Research has found that though a large number of people are aware of public Wi-Fi availability (70% of online consumers) only 15% have used it and only 6% have done so in a public place (Vilano, 2003, Table 15). And

²⁸¹ New Media Institute (2004).

only about 11% of visitors to Wi-Fi enabled U.S. Starbucks locations are taking advantage of the service (Biddlecombe, 2003).

Table 15: Location of Wi-Fi Use in the U.S. (2002/2003)

Where Did You Use Wi-Fi in the Last Year?	
Never used	85.0%
At the office	4.2%
In a public place for free	3.8%
At home	3.8%
Other	3.4%
Other	4.8%
At a hotel (likely paid)	2.0%
At an airport (likely paid)	1.7%
In a public place for a fee	1.3%
Source: Jupiter Research	

By [Matt Villano](#) November 21 2003 Wi-Fi Is Hot But Users Still Warming to It.
<http://www.clickz.com/stats/markets/wireless/article.php/3112271>

The above discussion places the diffusion of wireless communication in the U.S. into context. The main point is that there are significant developments occurring but these are still emerging and there are as yet no particularly distinctively American characteristics of wireless, except perhaps the slow development of the consume market. We can nevertheless comment on some emerging features on the landscape, specifically in relation to its integration into everyday existence.

3.2.6. *Integration of Wireless Communication into Everyday Life*

3.2.6a. Growing attachment to wireless devices

Most U.S. citizens say they get a cell phone for practical reasons and various studies have found that convenience and safety are the foremost reasons why people in the U.S. get a cell phone.²⁸² How they actually use the phone, however, is often different from their original motivation, as Katz has noted.²⁸³ For example, a study by Grant and Kiesler found that workers at the Carnegie Mellon

²⁸² Cingular Wireless (2003).

²⁸³ (1996, 1998).

University became attached to their mobile phones a few months after acquiring them for work purposes, beginning to see them as personal possessions.²⁸⁴ The wearability of wireless devices, as well as their interactive capabilities clearly gives them a different character and meaning in people's lives than other types of communication devices such as the fixed telephone line or desktop computer. A new demonstration of this tendency is people's eventual attachment even to their cell phone number. Recently, FCC rules have made it possible for people to migrate to new wireless telephone service providers without changing their existing phone number. So far 54 million people have taken advantage of this ability.²⁸⁵

Grant and Kiesler also found that the phones were used for both work and social purposes and there was "a clear shift in work and personal communication in behavior settings."²⁸⁶ For example, there was more sending and receiving of personal calls in the work setting, and vice versa. Similar results were obtained by Palen, Salzman and Youngs in their study of new mobile phone users.²⁸⁷

Increasingly, smaller devices are being preferred to larger ones, when mobility is a priority. The use of laptops fell by 45% when Goldman Sachs employees were given Blackberry pagers,²⁸⁸ evidence that technology is quickly adopted or discarded as in so far as it better meets the user's needs, and also highlighting the liking for more wearable technology. Possibly, then, as long as the available wireless Internet options do not give U.S. consumers right blend of the PC experience and portability that they seem to require, their use will only grow slowly.

3.2.6b. Cultural concerns

As it becomes more and more integrated into everyday existence, the pervasiveness of wireless communications exposes cultural concerns about the changing pace of life engendered by this technology, and the U.S. is not immune to these fears. Concerns range from general anxiety about the increased pace of life, to issues of public etiquette, the blurring of public/private work/personal boundaries, dangerous driving and health implications of wireless technology. It is rather ironic that technology should now be considered a factor in accelerating the pace of life in the U.S., considering that not too long ago, the anxiety was linked to fears about technological advances leading to

²⁸⁴ Grant and Kiesler (2002).

²⁸⁵ Pelofsky (2004).

²⁸⁶ Grant and Kiesler (2002, p.129).

²⁸⁷ Palen, Salzman and Youngs (2000).

²⁸⁸ *The Economist* (October 13, 2001).

excessive leisure time.²⁸⁹ On the contrary, the uses of wireless communication technology have made it possible for people to occupy their every potentially idle moment, whether by checking email at the bus stop or while waiting for a flight, sending text messages when bored, or conducting clandestine conversations or personal research during meetings.

Mobile communication devices become such an integral part of everyday life that people begin to use them as an extension of the self without regard to their physical situation. For example, about 44% of Americans have a cell phone in the car and although a majority of them recognize that using a cell phone while driving is dangerous, they say they still do it.²⁹⁰ The debate about cell phone use while driving is leaning more and more in favor of seeing it as a life-threatening activity. Several states now have laws against using handheld cell phones while driving, e.g., New York City. Other types of actions are being considered in other states, such as limitation of headset use. These legal provisions are driving changes in the design of technology such as development of hands-free devices, voice activated dialing and integrated voice messaging.²⁹¹

In terms of ethical behavior, one might say there are developing now notions of “m-etiquette” (mobile etiquette) and other coping strategies to deal with the now unavoidable intrusion of wireless communications into public spaces. Norms are developing about appropriate protocol in places like libraries, theatres, restaurants, places of worship etc. Some of these are self-regulatory effects; others are initiated by social institutions. For example, a bill has been considered in Illinois to have separate areas in restaurants for diners with cell phones.²⁹² A study by Caporael and Xie found that respondents voluntarily tend to switch off their phones in certain public spaces such as churches or concert halls.²⁹³ On the other hand, respondents were not so concerned about the phone intruding into their interactions with friends and family. American respondents were, however, less accepting of receiving calls from employers outside working hours than Chinese respondents, and would use screening devices such as pagers and caller ID to maintain a separation between work and personal time.

²⁸⁹ Katz (2003b).

²⁹⁰ Selian (2004).

²⁹¹ Beaubrun and Pierre (2001); Hahn and Dudley (2002).

²⁹² Georges (2001).

²⁹³ Caporael and Xie (2003).

While there exist the broader anxieties about privacy and security in the context of wireless communication networks, at a more individual level one can see adaptations of wireless communication uses to invade the privacy of others. Spouses and partners increasingly use mobile communications devices to check up on their partners' activities. Katz recounts the example of a youth who accessed information on calls his girlfriend received on her wireless device and contacted male callers to warn them off.²⁹⁴ A Chicago woman reportedly left her boyfriend because she felt he was making numerous calls to her cell phone to check up on her.²⁹⁵ More recently, a California man was arrested for using a GPS-enabled cell phone to locate and stalk his ex-girlfriend, by attaching the phone to the bottom of her car.²⁹⁶ On the other hand, some surveillance acts afforded by wireless communication may be positive. For example, a young teenage boy was reportedly able to affect the capture of a potential molester by taking a picture of his attacker's license plates and transmitting it to the police.²⁹⁷ A Los Angeles company has launched a service that can send drivers a text message reminding them to move their car from a restricted zone²⁹⁸ and patients can also get reminders to take their medication.

3.2.7. *Impact of 9/11*

While communication technologies may become almost seamless aspects of society, sometimes specific events cast light on their critical functions to individuals and groups. In contemporary America, one cannot talk about wireless communication without referring to the 9/11 attacks on the Trade Center towers. Cell phones played a critical instrumental and emotional role in the unfolding of events on that day. Uses included: coordinating rescue activities, reporting on-going events on the hijacked planes, saying goodbyes to loved ones and finding out the status of loved ones.²⁹⁹ In this respect, wireless communication was instrumental in reconfiguring access to information between people on different sides of the tragedy,³⁰⁰ sometimes with lifesaving consequences, such as when cell phone users trapped in the collapsed buildings were able to direct rescuers to their location. Thus, apart from its obvious practical uses for safety and security in normal times, access to wireless communication can now mean the difference between life and death in a time of crisis. In fact a direct outcome of these events was the prioritization in policy circles of the need to establish effective

²⁹⁴ Katz (1996).

²⁹⁵ Plant (n.d.).

²⁹⁶ Associated Press (September 4, 2004).

²⁹⁷ Associated Press (August 1, 2003).

²⁹⁸ Miller (2003).

²⁹⁹ Dutton and Nainoa (2002); Palen (2002); Sharma and Nakamura (2003).

³⁰⁰ Dutton and Nainoa (2003).

wireless location capabilities. The FCC had already mandated wireless carriers to enhance 911 capability (E911) by October 2001,³⁰¹ although this requirement has now been somewhat relaxed to give operators more time.

Dutton and Nainoa also note how wireless communication facilitated the formation of flexible networks and enabled users to by pass formal or hierarchical channels both inside and outside the hijack situation.³⁰² The flipside of this, the authors note, is the observation that the only location where there appear to have been no calls in or out, was the Pentagon, an illustration perhaps of how social and institutional environments can inhibit people's ability to bypass hierarchy even when the technology to do so is available.³⁰³ On the other hand, cell phones were also used to facilitate the activities of the hijackers, highlighting the "double edged sword of communication,"³⁰⁴ which can be used for positive or negative ends.

Wireless data services were shown to be particularly useful in times of crisis when voice networks are unavailable. As wireless voice networks became saturated, emails, instant messaging and SMS took on increased usefulness mainly for people trying to check up on or offer emotional support to friends and loved ones.³⁰⁵ Wireless data and messaging networks were also critical for the continued operation of public and private organizations in the aftermath of the attacks. Blackberry devices, already popular in the New York business district, were particularly prominent.³⁰⁶ Apart from the 9/11 period when this capability was demonstrated, mobile Internet users are reported to have used moblogs (mobile blogs) extensively during the August 2003 blackouts in midwestern and northeastern U.S. to record and distribute pictorial information on their experiences.³⁰⁷

The high profile of cellular communication associated with 9/11 leads one to expect that there would be a noticeable increase in purchases of cell phones in the ensuing period. Most discussions of the events conclude that cell phones have acquired increased significance since then in private lives and public policy. For example, Dutton and Nainoa state:

³⁰¹ FCC (1999).

³⁰² Dutton and Nainoa (2003).

³⁰³ Ibid.

³⁰⁴ Ibid, p.242.

³⁰⁵ Sharma and Nakamura (2003).

³⁰⁶ Sharma and Nakamura (2003); Wolfensberger (2002).

³⁰⁷ Srivastava (2004).

In the aftermath of September 11, the wireless industry experienced a major boost. Stocks rose. More phones were sold. More minutes were billed. People and the press began to talk about the cell phone as a ‘lifeline’ in the case of an emergency, for example with some schools in the US giving cell phones to teachers and lifting bans on students having cell phones on their campuses. To some degree, this emergency role was a factor in cell phones’ early diffusion, but the rapid expansion of colorful covers, sharp designs and ubiquitous use enabled notions of fashion, conviviality and easy contactability to define the cell phone more as a luxury or necessary everyday social and business aid—until September 11.³⁰⁸

After the 9/11 events, 43% of respondents in a survey said they now feel safer with a cell phone than without one.³⁰⁹ Besides, safety was already one of the main reasons why people get a cell phone for themselves or their children.³¹⁰

However, three years after 9/11 it is becoming apparent that the perception of the cell phone as a crucial safety device that may have arisen after the tragedy, has not been maintained. Data on subscriptions from 2001 to date indicate that the influence of 9/11 may not have been that great. The U.S. wireless phone market grew by 25.5% between 1998 and 2002, but this growth level is still lower than predictions made even before the tragic events of 9/11.³¹¹ The growth figures show that after a period of high growth, the rate of cell phone subscription growth actually slowed drastically after 2001 (e.g., subscriptions grew by 14.8% between 2000 and 2001 and only by 9.4% between 2001 and 2002, although it began to rise somewhat in 2003). This is confirmed by Henry Fund Research data, which shows that the rate of growth of the mobile phone market has been decreasing steadily since 2000 (Figure 35).³¹²

³⁰⁸ (2003, p.243-244).

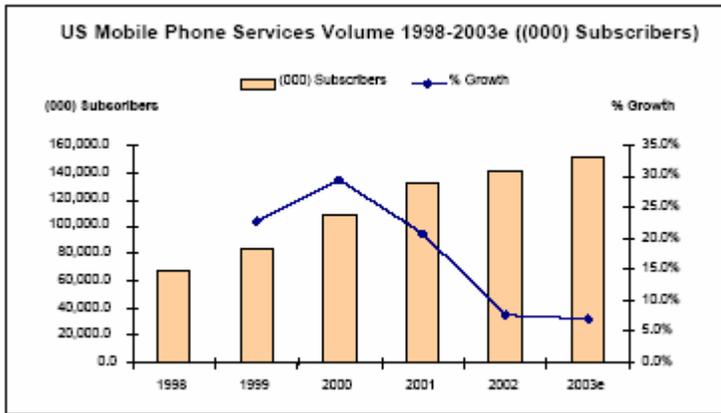
³⁰⁹ Genwireless (2001).

³¹⁰ Katz (1996); Selian (2004).

³¹¹ Euromonitor (2003).

³¹² Henry Fund Research (2004).

Figure 35: Market size and growth rate of US wireless market



Source: ITU, Cellular Online, Snapdata Research

Reproduced from Henry Fund Research, (2004, p.2). *Wireless Communications*.

The general decline in the U.S. economy may be a factor inhibiting consumer subscription in this context. On the other hand, just as the use of telecommunications has been critical in other disasters (e.g., earthquakes) without having a lasting effect on perceptions of the technology,³¹³ the initial association of the cell phone with safety and security has apparently waned in favor of associations with the values of sociability, business efficiency and personal expression.

3.2.8. Summary: The United States

1. Sluggish growth rates: there is no doubt that the U.S. is one of the largest mobile markets, if only because of its large population. There is also a perception of Americans as fairly rapid adopters of new technology. However, mobile communication technology appears to be an exception to this rule. Compared to other developed countries, growth of the wireless market has been slow. Even the terrible events of 9/11 that brought the instrumental, social and emotional attributes of wireless communication into the forefront of American society, have not as yet boosted adoption rates to any noticeable extent. Some of the reasons for slow uptake have been discussed in Section 1. Americans are using wireless communication, and those who are using it are doing so enthusiastically, but it has not captured the society to the extent it has in other countries.
2. Dominance of the corporate market: business enterprises in the U.S. seem particularly receptive to wireless telephony and data services, even more so than business in other

³¹³ Dutton and Nainoa (2003).

countries. Applications in this sector are currently more advanced and user-appropriate than those for the consumer market, most of which are more or less experimental.

3. Barriers to adoption: this situation highlights the variable nature of technology adoption depending not only on socio-economic factors, but on structural, cultural and historic factors that lay the ground for new technologies to take root. Availability of new and useful technology does not guarantee it will be used by the target audience, as for example, the Wi-Fi situation seems to indicate.
4. Youth culture as the market energizer: The youth market is seen as the critical element to revive the U.S. wireless market. This could very well be the missing factor since the high levels of adoption in other countries are associated with large quantities of youth users.

Reverse globalization influence: it could also be argued that the spread of wireless communicative practices provides a clear case where the U.S. is the adopter of practices from other countries rather than vice-versa. Apart from a consumerist orientation that some may still attribute to U.S. influences, the terms and character of wireless communication seem to be being shaped outside the U.S. boundaries. It will be interesting to see the extent to which cultural practices of the early wireless adopters in Europe and Asia will flow into the U.S. as a wireless culture develops here.

3.3. THE ASIAN PACIFIC

3.3.1. *Japan*

Mobile phone (or *keitai*) has spread to different parts of Japanese society. Besides active youth mobile culture, which will be discussed in more detail in Section IV, other social groups and institutions have also adopted the technology and appropriated it in their own ways, leading to the contestation of existing social relations as well as the formation of new ones in a variety of cultural spaces. The dependency of the general population on mobile phone has reached such an extent that, according to Misuko Ito, “To not have a *keitai* is to be walking blind, disconnected from just-in-time information on where and when you are in the social networks of time and space.”³¹⁴

A broad consensus has been formed that the usage of *keitai*, including especially the myriad wireless Internet applications, is central to the transformation of the Japanese information society, a process significantly distinct from the development of computer-based Internet in other countries. At the personal level, this is a different mode of access unlike the conventional indoor experiences of going online that are immersive and stationary.³¹⁵ At the social level, the formation of norms and the emergence of new mobile-facilitated social structures constitute “an alternatively technologized modernity.”³¹⁶

3.3.1a. Why Mobile Internet?

Before examining other aspects, let us first look at the country’s success in diffusing mobile Internet and related value-added services, which is a rather outstanding achievement on the global scale. Researchers attempt to understand this success by proposing several reasons rooted in the Japanese information society. First, the phenomenal growth is explained as resulting from the relatively low penetration of computer-based Internet access. When i-mode, the first and most successful mobile phone-based Internet service in Japan, was launched in 1999, only 13 percent of the Japanese population was online.³¹⁷ But in the first year of operation, the subscriber base of i-mode rose beyond

³¹⁴ Ito (2003a).

³¹⁵ Gottlieb and McLelland (2003); Ito (2004, p. 7).

³¹⁶ Ito (2004, p. 2).

³¹⁷ ITU (2002, p. 18).

the level that the country's main ISP (NiftyServe) had reached using 15 years.³¹⁸ This is because i-mode has fairly low initial cost, its billing is based largely on a pay-as-you-use mechanism, and that PC-based Internet services remain expensive.³¹⁹

The popularity of mobile Internet is also widely attributed to the convenience of its usage due to its IP-based standards, the packet network, and cHTML websites, which facilitate a more user-friendly interface.³²⁰ For average Japanese, this is crucial because it enables the provision of large amount of content and services in the Japanese language³²¹ while it was relatively easy for users to enter Japanese characters on mobile keypads.³²²

Collectively oriented cultural tendency plays a part in the fast growth of wireless Internet. Lots of the services provided on mobile Internet aim at sustaining and reinforcing existing social relationships. And the majority of emails being exchanged among mobile phones are among people with intimate relationships (e.g., families and close friends).³²³ Researchers such as Barnes and Huff thus believe the rapid growth of mobile Internet usage owes to the normative beliefs in Japanese society that attach high values to interpersonal relationships.³²⁴

The organizational structure of DoCoMo is another reason because it effectively stimulates and sustains innovation with “the creation of new markets through the deliberate and strategic maintenance and subsequent integration of paradoxical organizations and strategies under a single corporate umbrella.”³²⁵ The company sits at the center of a large network of commercial entities, characterized by revenue sharing and cross-promotion among ICPs, handset makers, and marketing agencies.³²⁶

Since NTT is the market incumbent, the Japanese government, especially the Ministry of Post and Telecommunications, also owns most of NTT's shares, a structural factor with undeniable importance

³¹⁸ Ibid.

³¹⁹ Barnes and Huff (2003, p. 82).

³²⁰ Lindgren et al (2002, pp. 60-1); Brown et al (2002, pp. 203-4); Barnes and Huff (2003, p. 82).

³²¹ ITU (2001, 2002); Brown et al (2002, p. 204).

³²² ITU (2002, p.18); Barnes and Huff (2003, p. 81).

³²³ Ito (2004, pp. 10-11).

³²⁴ Barnes and Huff (2003, p. 83).

³²⁵ Kodama (2002, p. 26; 2003, p. 307).

³²⁶ ITU (2002, pp. 18, 100); Lightman and Rojas (2002, pp.262-3).

in the Japanese context.³²⁷ The brand name of NTT as an established and respected voice provider adds to the public trust in Docomo and i-mode,

3.3.1b. Connectivity, Sociability and *Keitai*

Issues of sociability and connectivity are most interesting given the strong collectivistic tradition of Japan and the self-enhancing capacity of wireless technologies.³²⁸ Ito holds that *keitai* connectivity plays a unique social role because it is “a seeping membrane between the real and the virtual, here and elsewhere, rather than a portal of high-fidelity connectivity that demands full and sustained engagement;”³²⁹ because “[u]nlike voice calls, which are generally point-to-point and engrossing, messaging can be a way of maintaining ongoing background awareness of others, and of keeping multiple channels of communication open.”³³⁰

Based on these realizations drawn from her ethnographic fieldwork, interviews, and communication diaries,³³¹ Ito argues that “*keitai* is not so much about a new technical capability or freedom of motion, but about a snug and intimate technosocial tethering, a personal device and communications that are a constant, lightweight, and mundane presence in everyday life.”³³² Even when people are physically apart, *keitai* enables constant contact that keeps alive what Misa Matsuda calls a “full-time intimate community.”³³³

This observation cross-validates with Ishii’s survey findings that those who use mobile Internet more frequently also spend more time physically with friends and that “the mobile Internet serves distinctly different social functions from the PC Internet.”³³⁴ The key difference is that, while high-intensity PC Internet users tend to spend less time with friends and families, heavy mobile Internet users are actually more active in interpersonal communications and socializing, as shown in Table 16. Mobile phone users are also found to have high disclosure of their subjective self because, as mentioned earlier, a lot of Japanese subscribers use mobile phone based on close interpersonal relationships.

³²⁷ Barnes and Huff (2003, p. 83).

³²⁸ See Mitchell (2003).

³²⁹ Ito (2004, p. 17).

³³⁰ Ito and Okabe (forthcoming, p. 13).

³³¹ Ibid, pp. 2-3.

³³² Ito (2004, p. 1).

³³³ Cited in Ito (2004, p. 11).

³³⁴ Ishii (2004, p. 57). The surveys were conducted in 2000, 2001, and 2002, involving nationally representative samples of 2555, 2816, and 2333 respondents in the three years respectively.

This is consistent with earlier findings that mobile phone users are more sociable than non-users³³⁵ and that the use of email via mobile phones enhances sociability among university students, both for women and men.³³⁶

Table 16. Regression analysis of mobile phone and Internet use (regression coefficients)³³⁷

Independent variable	Dependant variable	
	Time spent with family (min)	Time spent with friends (min)
Internet use by PC (min)	0.395**	-0.009
Internet use by mobile phone (min)	-0.036	0.447***
Gender (<i>M</i> = 0, <i>F</i> = 1)	472.6***	23.4
Age	17.0***	-8.4***
Education ²	-325.9*	-111.0**
Marriage (yes=1, NO=0)	567.2***	-433.0***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: Ishii, K. (2004). *Internet Use Via Mobile Phone in Japan*. *Telecommunications Policy*, 28(1), 43-58.

But the notion of *keitai* community differs from traditional face-to-face community because there is a dual effect of the ease with which one may maintain frequent communication with one's significant others across spatial distance at any time. While the intimate relations may well be strengthened due to more communication (oftentimes ritualistic greetings and repetitive expressions of affection), in other occasions, heavy *keitai* usage may also lead to the weakening of communal ties beyond the most intimate group of close friends and families.³³⁸ This is the phenomenon that Ichiyo Habuchi describes as "tele-cocooning," the production of social identities in small, insular social groups through mobile communications.³³⁹

Studying Japanese college students, McVeigh argues that the use of mobile phones strengthens the trend of individualization, in which young people internalizes consumerist values and are self-

³³⁵ Hashimoto et al. (2000). – Hashimoto, K., Y. Hashimoto, K. Ishii, I. Nakamura, R. Korenaga, D. Tsuji and Y. Mori, (2000). Survey research on uses of cellular phones and other communication media in 1999. *The Research Bulletin of the Institute of Socio-Information and Communication Studies* 14 (2000), pp. 83–192 (in Japanese).

³³⁶ Tsuji & Mikami (2001). – Tsuji, D. and Mikami, S. (2001). A preliminary student survey on the e-mail uses by mobile phones. *Paper presented at JSICR*, June, 2001: Tokyo.

³³⁷ Ishii (2004, p. 56).

³³⁸ Ito (2004, pp. 10-11).

³³⁹ Cited in Ito (2004, p. 11).

centered.³⁴⁰ Two types of individualization are proposed. One is indicated by an endeavor to be fashionable, an attempt to better express one's sentiments, and an effort to acquire one's own space (i.e. privacy); the other is more extreme emphasis on individuality with social atomization poignantly exemplified by the so-called *kaitai-izon* (mobile phone addiction).³⁴¹ According to Nagamine, extremely high usage of *keitai* exchanges "symbolically reflected the characteristics of young people who liked to stay in their own inner worlds and shut out communication with others."³⁴² McVeigh further introduces the widely felt worries about the reduction of quality in interpersonal relationships:

Professor Tomita Mitsuyasu of Sapporo Gakuin University coined the term *minna-bochi* (persistence in being together) to describe how young people, because they feel neglected, "prefer being linked with as many people as possible. However, they dislike deeper ties with others because such ties are energy-consuming, so they want to keep adequate social distance in their relationships with others for their own convenience." Ironically, though they are connected to many people, they can be at the same time *hitori-bochi* (totally alone).³⁴³

Like interpersonal relations on PC-based Internet, problems of authenticity exist when strangers meet in *keitai* virtual spaces. For instance, the average practices of *deai* are full of "personal aggrandizement, social detachment, (which are) self-centered and inwardly-directed."³⁴⁴ Along a more historical line of thinking, Kogawa also argues that "as far as the present Japanese collectivity is concerned, it is electronic and very temporal, rather than a conventional, continuous collectivity based on language, race, religion, region or taste."³⁴⁵

Finally, the transformation of sociability with the diffusion of mobile technologies is probably constituted by multiple processes that point to different configurations between the individual and the collective. It was for this reason that Ito concludes,

keitai are implicated in a heterogeneous set of shifts keyed to social and cultural differentiation and growing out of prior forms of practice. In other words, we see reason to be skeptical of sweeping claims of a shift to a new 'mobile society' characterized by the

³⁴⁰ McVeigh (2003, pp. 24-32).

³⁴¹ Ibid.

³⁴² Nagamine (2001, p. 6).

³⁴³ McVeigh (2003, p. 29).

³⁴⁴ Holden and Tsuriki (2003, p. 44).

³⁴⁵ Kogawa (undated).

increasing predominance of dispersed and fragmented networks over localized and integrated ones... While we see the strengthening of discourses and bonds of intimacy and selective relationality, the forms that these take in everyday practice are so varied and that they can not be reduced to a march towards a singular model of sociability.³⁴⁶

3.3.1c. Consumerism, Identity, and Sexuality

Despite its multiple social forms, the totality of Japanese *keitai* culture is fundamentally defined by a tendency of ultra consumerism that subsumes issues of identity and sexuality in the consumerist empowerment of individuals. Again, as Ito points out, one may see *keitai* as the latest culmination of “Japan’s gross national cool”³⁴⁷ that continues the country’s tradition of small electronic products such as Walkman, Tamagotchi, Pokemon cards, and Game Boys, which are all “intimate, personal, and portable media technologies.”³⁴⁸

These include not just cell phones but a “wide range of accessories and peripherals” including battery packs, universal serial bus (USB) cables, straps, adaptors, carrying cases, car holders, earphones, attachable digital cameras, and attachable keyboards.³⁴⁹ It’s not just gadgets but also the content and services provided by the web sites targeting mobile Internet users – not all kinds of content and services though, but those that are the easiest to generate instant gratification and therefore the most convenient to be commodified for profit. According to Lindgren et al, more than half of i-mode’s data traffic points to entertainment content such as games.³⁵⁰ It is also reported that more i-mode users click through banner ads and email ads, 3.6 per cent and 24 per cent respectively, compared to less than 0.5 per cent for PC-based online banner ads.³⁵¹

As Ms. Matsunaga, a key leader of Docomo’s marketing force, articulates:

For me, i-mode is a declaration of independence. It's 'I' mode, not company mode. That's the message I wanted to deliver: this is me in individual mode. Japan's system of lifetime

³⁴⁶ Ito (2004, p. 12).

³⁴⁷ McGray (2002).

³⁴⁸ Ito (2004, p. 2).

³⁴⁹ McVeigh (2003, p. 21).

³⁵⁰ Lindgren et al (2002, p. 61).

³⁵¹ Enos (undated).

employment, which always meant you had to live your life for the company, is crumbling. The 'i' in i-mode is about the Internet and information, but it's also about identity.³⁵²

Indeed, considerations of identity have been deliberately incorporated in the design and promotion of new mobile phones and wireless services. *Keitai* R&D taskforces have routinely consulted teens and females to find out about their cultural needs in using mobile phones. The findings are integrated in gadget/service design, which would then go through experiments or trial usages by members of the target social groups for further improvement.

Closely related to the identity-consumerism dynamic is the issue of sexuality. Holden and Tsuruki maintain that cellular phone “has become a staple of the faddish, mobile, mediated, gadget-centered, youth-oriented, licentious lifestyle of contemporary urbanized Japan.”³⁵³ One illustrating example is the practice called *enjo kousai* “that started in the nineties, where school girls, particularly *kogyaru*, meet older men on the street and date for money” arguably made possible by mobile phones.³⁵⁴

Another case is the usage of *deai*, i.e. online encounter services for people to meet virtually or in flesh, which are “strongly associated with issues of dating, companionship, sexuality and romance”³⁵⁵ for mostly heterosexual but also homosexual relations. Unlike earlier matchmaking and friends-making settings, “individuals (using *deai*) are able to operate in virtual isolation, freer of weighty social structure and claustrophobic external surveillance.”³⁵⁶ Many *deai* services hence become a hotbed for fraudulent dating, online pornography, and even open solicitation of prostitution.³⁵⁷

Yet the combination of *keitai* connectivity and commercial operations does not necessarily mean moral corruption. Holden and Tsuruki point out that *deai* may also “affords some of the advantages of the institutional orbit – namely trust and self-defense. In this way, dual benefits are provided: individually-established and managed social connections, as well as a modicum of security.”³⁵⁸ The example they use to make this point takes place in Nakashibetsu, a farming community in the eastern

³⁵² Cited in Stocker (2000).

³⁵³ Holden and Tsuruki (2003, pp. 34-5)

³⁵⁴ Ito and Okabe (2003, p. 14).

³⁵⁵ Holden and Tsuruki (2003, p. 34).

³⁵⁶ *Ibid.* p. 35.

³⁵⁷ *Ibid.* p. 37.

³⁵⁸ *Ibid.* p. 35.

tip of Hokkaido, Japan's northernmost island.³⁵⁹ Due to agricultural mechanization and modernization, local young people, especially women, have been leaving to live independently or enter college. The city of Nakashibetsu then started to use *deai* to promote matchmaking, which had proven to be very successful. In this case, wireless Internet was not only used to facilitate online interpersonal communication but also to select single people who will attend "the biannual, three-day pre-marital mixers." Another socially productive use of *deai* is exemplified by groups such as *zenkoku furusato koryu foramu*, a site fostering exchange between "home towns," which promote individual and personal communication that are nonetheless communal and outward-reaching.³⁶⁰

3.3.1d. Gender and the Culture of *Kawaii*

Among the most essential social uses of *keitai* is the manifestation and celebration of the female gender in the culture of *kawaii*, also known as Japan's "cute culture."³⁶¹ Mobile phones are lightweight, portable, and easy to be customized as a wearable item to suit different lifestyles and fashions. As a result, *keitai* decorations and their associated cultural expressions have become the latest epitome of the culture of *kawaii*. According to Hjorth, "the implications for women in Japan, who have been both key consumers and producers of *keitai* technology, are considerable."³⁶² "The colonization of high-tech spaces such as the Internet by the cute characters usually associated with the female realm in Japan is an important signifier of the power afforded women by this new technology."³⁶³ The best symbolic illustration of this new found power is probably Ms. Mari Matsunaga. Given her 20-year editorship at *Recruit*, many have attributed DoCoMo's success in part to Matsunaga's female perspective as both consumer specialist and media producer.³⁶⁴

The image of a trendy female mobile phone user is not without its critic though. Kogawa, for instance, criticized that Japan's "independent" women has become no more than "a new consumer."³⁶⁵ This line of thinking suggests that the culture of *kawaii* further promoted by *keitai* usage does not really empower women. In fact, what it does is to further subdue females to the dominance of technologized consumerism.

³⁵⁹ Holden and Tsuruki (2003, pp. 37-8).

³⁶⁰ Ibid. p. 44.

³⁶¹ McGray (2002); Hjorth (2003); Richie (2003).

³⁶² Hjorth (2003, p. 57).

³⁶³ Ibid, p. 52.

³⁶⁴ Lightman and Rojas (2002); Rheingold (2002).

³⁶⁵ Kogawa (undated).

The duality of power relationship is most manifest among cell phone equipped *kogyaru* (high school gals), “a label attached to the newly precocious and street savvy high school students of the nineties who displayed social freedoms previously reserved for college students”:³⁶⁶

In certain city centers, *kogyaru* continue to be highly visible, sporting platform sandals, brightly-colored fashions, sun-tanned faces, colored hair, and often a highly decorated mobile phone hanging from their necks. Unlike the male *otaku* (techno-geeks) associated with video games and computers, media savvy girls have been associated with communication technologies such as pagers and mobile phones. *Kogyaru* are commonly thought to be the social group that pioneered and popularized uses of mobile communications, first with their appropriation of pagers in early nineties, and then with mobile phones the latter half of the nineties. Within a space of a few years between 1995-98, mobile phones shifted from association with business uses to an association with teen street culture. This shift coincided with the high visibility of *kogyaru* in the media and on the streets.”³⁶⁷

According to Ito and Okabe, the *kogyaru* phenomenon carries on “a succession of highly visible but transient youth subculture” in postwar Japan.³⁶⁸ On the one hand, it “flies in the face of mainstream norms that insist that young women be modest, quiet, pale, and domestic.” Yet, on the other hand, most Japanese girls including full-blown *kogyaru* “tend not to have oppositional relationship with their parents and teachers.”³⁶⁹ They often maintain a split personality and hide their *kogyaru* identity in front of elders.

3.1.1e. The Formation of Social Norms

Not only do mobile phone and wireless Internet play a role in the integration and disintegration of communities, they also provide a generic social space in which collective practices become regularized and formalized, giving rise to social norms that shape future development in the social uses of the technologies. More than anything else, this line of change starts with the changing notion

³⁶⁶ Ito and Okabe (2003, p. 6).

³⁶⁷ Ibid, pp. 6-7.

³⁶⁸ Ibid, p. 7.

³⁶⁹ Ibid.

of time, or the “softening of time,”³⁷⁰ under certain spatial conditions, for example, the “burst of information during ‘in-between’ time: while waiting for a train, riding in a taxi, sitting alone in a coffee shop.”³⁷¹

In some of these situations, new practices enabled by *keitai* may run into conflict with existing customs. For instance, “[t]he older generation complains that *keitai* are linked to bad manners, particularly when people use them on public transportation or during meals. Parents worry that they can’t keep track of their children’s friends anymore, since the home phone is no longer a site of incidental intergenerational contact.”³⁷² New social norms thus need to take shape either spontaneously or through the imposition by mobile providers, government authorities, and/or private business owners.

Keitai Etiquettes

Public transportation offers a particularly accessible time-space in which individual usage of *keitai* has been subject to strict collective control. According to McVeigh, “In train and subway stations, one can see signs reading ‘Thank you for not using your portable phone.’ Other signs are posted warning how cell phones might affect pacemakers. In university classrooms pagers and cell phones also need to go off. Many people won’t answer their mobile phones in a crowded train, or even if they do so, they will speak in low voice.”³⁷³ In a separate study, Ito and Okabe obtain similar findings about *keitai* usage in public transportation.³⁷⁴

Due to strict control over students’ *keitai* usage at school, participants in Ito and Okabe’s study reported that they would usually set their mobile phones in “the manner mode” (silent mode)³⁷⁵ in classrooms. Another important norm, at least among college and high school students, is that “[b]efore initiating a call to a *keitai*, they (the users) will, almost without exception, begin with a text message to determine availability; the new social norm is that you should ‘knock before entering.’”³⁷⁶

³⁷⁰ Rheingold (2002, pp. 5, 190-8).

³⁷¹ Larimer (2000, p. A29).

³⁷² Ito (2003a).

³⁷³ McVeigh (2003, p. 29)

³⁷⁴ Ito and Okabe (2003, pp. 12-4).

³⁷⁵ Ibid, p. 15.

³⁷⁶ Ito (2003a).

Spam Control

Another realm of social control is in the virtual space against spammers.³⁷⁷ Docomo had initially given its ‘i-mode’ phones e-mail addresses as follows: ‘(phone number)@DoCoMo.ne.jp,’ which allowed spammers to send users mail by generating random 8-digit e-mail addresses. As a result, in October 2001, DoCoMo users received some 950 million e-mails every day, of which about 800 million are returned to senders because of unknown addresses, putting a huge strain on its servers. In June 2002, operators received 140 thousand complaints about spam mail.

Since July, Docomo has urged its subscribers to change to new addresses containing alphanumeric characters.³⁷⁸ In November 2001, DoCoMo built a system to block e-mails sent to unknown addresses, whereby error messages are not returned to senders in order not to inform them of non-existent addresses. DoCoMo also won a temporary injunction in the city of Yokohama to bar the Web company Global Networks from sending randomly generated e-mail to addresses with the suffix ‘@DoCoMo.ne.jp’. In January 2002, it launched a service enabling users to designate a maximum of ten domain names from which they want to receive e-mails, and to block e-mail from others. However, devious spammers have been able to get around this by sending spam mail using fake domains. In April 2002, DoCoMo upgraded its mail server to block such forged-domain spam mails.

The Government also provides countermeasures.³⁷⁹ In January 2002, METI (Ministry of Economy, Trade and Industry) obliged content providers to show ‘mi-syoudaku-koukoku (non-agreed advertisement)’ in the mail header, so that users can delete these mails without opening them. The MPHPT has also established a new law adopting the “opt-out” approach, prohibiting the sending of random bulk mail.

Camera Phones

Since J-Phone launched its first camera phone in October 2000, the number of camera-enabled handsets has been rising quickly in Japan. Among DoCoMo subscribers, 25.4 per cent were using camera phones in August 2003.³⁸⁰ “Unlike the traditional camera, the camera phone is an intimate and ubiquitous presence that invites a new kind of personal awareness, a persistent alertness to the

³⁷⁷ ITU (2002, p. 94).

³⁷⁸ Ibid.

³⁷⁹ Ibid.

³⁸⁰ Okabe and Ito (2003).

visually newsworthy that makes amateur photojournalists out its users.”³⁸¹ DoCoMo’s i-shot and video phones for micro-level multimedia exchanges are increasingly sustained by websites in the public domain, giving rise to a new variant of online journalism.³⁸²

However, unscrupulous usage of camera phones also started to emerge, which was greeted by collective complaints, private-business interventions, and government regulation in a way not too different from the social responses to *keitai* spam.³⁸³ Two kinds of mischief raised serious public concern. One is that some people took photos secretly up women’s skirts and down into public bathrooms. The other is the so-called “digital shop-lifting” when copyrighted materials, most often fashion magazines in bookstores, were photographed with camera phones, which caused reduction in sales.³⁸⁴

Japanese police has started to pay attention to inappropriate camera phone usage in public spaces. They have apprehended people who took pictures up the skirts of unsuspecting women in crowded train stations and stores, one of whom was fined USD 4,200.³⁸⁵ Public bathhouses in Japan have also prohibited cell phones with built-in cameras.³⁸⁶ Some Japanese camera phone makers like Yatane is also selling phones that make a loud shutter noise to warn people that they have had their picture taken.³⁸⁷

3.1.1f. Summary for Japan

1. **The Popularity of Mobile Internet** – Japan leads the world in terms of the percentage of its Internet population who access online content through mobile phones. The key reason is i-mode, the service launched by NTT Docomo to create a “truly ubiquitous mobile Internet.” It was an instant success because computer-based Internet services remained expensive at the time and they had only diffused to a small part of the population. Interestingly, i-mode started by using the mova 2G network. Despite its low bandwidth, this network was able to attract

³⁸¹ Ibid.

³⁸² Ito (2003a).

³⁸³ Kageyama (2003).

³⁸⁴ Ibid.

³⁸⁵ Ibid.

³⁸⁶ Ibid.

³⁸⁷ BBC (2003).

millions of subscribers partly because it was cheap, easy to use, and with rich content, partly because the Japanese society had a huge reserve of untapped informational demand.

2. **Organizational Innovations at Docomo** – The success of i-mode had to do with NTT’s status as the dominant incumbent in the telecom market. But more important, it was because Docomo broke with NTT’s conservative corporate culture and brought in creative personnel from the dot-com and commercial magazine industries. The organizational structure of Docomo is consequently more open, comprising a system of revenue sharing and cross-promotion that includes official and unofficial content providers, handset makers, as well as marketing agencies. This more extended organizational network structure is less prominent in the cases of other major mobile providers in the Asian Pacific.

3. **Ultra Consumerism** – In Japan, like in China and a large part of the South Korean society, the mobile phone is first and foremost an object of consumption. The mobile phone culture or *keitai* culture consists of a great variety of consumption practices from purchasing handsets to downloading ring tones, from playing online games to using m-commerce services. As the latest culmination of the country’s “Gross National Cool,” the commercialist *keitai* culture “has become a staple of the faddish, mobile, mediated, gadget-centered, youth-oriented, licentious lifestyle of contemporary urbanized Japan.”

4. **Being Female and *Kawaii*** – The social uses of mobile phone in Japan manifests the construction and celebration of female gender in the culture of *kawaii*, i.e. the “cute culture.” This is in sharp contrast with the stereotypical depiction of Japan as a highly patriarchic society. But it is understandable because, among early adopting young users, the *keitai* culture builds on the previous pager culture that was primarily led by girls. Japan also has a long tradition of “intimate, personal, and portable media technologies” such as Walkman, Tamagotchi, and Pokemon cards that are cute and have a strong feminine appeal.

5. **Individuation or Tighter Community?** – Evidence shows that mobile usage leads to networked sociability when one can be either socially atomized or develop stronger personal ties depending on how the technology is used. Nagamine is concerned that mobile phone may deepen the social problem that many young people “liked to stay in their own inner worlds and shut out communication with others.” But Matsuda observes that cell phones are enabling

the formation of a “full-time intimate community” for its users. Habuchi also describes the process of “tele-cocooning” as a possible result from excessive mobile usage when social identities are produced in small, insular social groups. This tendency is confirmed in another study of mobile communication logs, which finds that Japanese youth spend most of their time contacting a very small percentage of the numbers stored in their mobile phones, those belonging to their closest friends.

6. **Creating Norms** – The Japanese society is fast in formulating new norms to regulate the usage of mobile phones when it affects others. In public transportation and classrooms it is considered necessary to reduce noise. Train station authorities have put up signs saying “Thank you for not using your portable phone.” Students now know that they should switch their phones to “the manner mode (i.e., silent mode)” during class. Another emerging norm among teenagers is that one should first text-message another person before placing a voice phone call to him/her. Docomo and the Japanese government have joined the fight for a spam-free mobile Internet environment. There are also efforts to prevent the unscrupulous usage of camera phones in public spaces, for example, by forcing camera phone manufacturers to add a loud shutter sound to their products while pictures are taken.

3.3.2. South Korea

South Korea is an important actor in the wireless market. Home to the world's first commercial CDMA service since January 1996, the country has been playing a major role in handset R&D, manufacture, and the launching of new mobile services. The country has a very active youth mobile culture and, during its presidential election of 2002, Roh Moo-Hyun became the unexpected winner in part due to the support of mobile phone-facilitated mobilization among Korean younger voters. We will focus on the socio-political aspect of mobile phone usage in Section V. In this part, let us first examine the social structures under which the new technology is flourishing and, then, what kinds of values and practices are emerging in South Korea's mobile information society. Since mobile phone has reached across generations, gender groups, and social classes, it would be particularly interesting to see how the technological diffusion is influencing traditional human networks.³⁸⁸

3.3.2a. Structural Dimensions of the Mobile Culture

It is important to recognize that, unlike in Japan where high mobile growth is achieved in the context of low Internet penetration, South Korea has an impressive mobile subscription rate of 78 percent as of November 2003,³⁸⁹ while at the same time 70 percent of Korean households were already equipped with broadband Internet connection.³⁹⁰ This on the one hand indicates extraordinary informational demand in this society. On the other hand, it owes to the deliberate policies of the Korean government to foster the mobile industry. In this sense, the Korean government remains a central player in the mobile market.

In order to establish the nation's IT leadership, the Korean government chose mobile telecommunications as a key strategic industry that needs systematic internal capacity-building, which will in turn contribute to future export and competitiveness in the global IT market.³⁹¹ Since then, a series of special policies ranging from handset subsidy to preferential regulation have been implemented.³⁹² In December 1994 the Ministry of Post and Telecommunications (MPT) was expanded in size and administrative function to become the Ministry of Information and

³⁸⁸ One type of traditional networks is known under the notion of *cheong*, see Yoon (2003a); (2003b).

³⁸⁹ KISDI Report (2003, p. 24).

³⁹⁰ MIC Report (2003, p. 3).

³⁹¹ Yang, Yoo, Lyytinen, and Ahn, (2003).

³⁹² See Lee, Park, and Oh (2000); Kim, D.-Y. (2002); Kim, Byun, and Park (2004).

Communication (MIC). Newer wireless technologies including Wi-Fi are also spreading as a result of the Korean government's "u-Korea (or ubiquitous Korea)" project.³⁹³

The most important structural condition set by the Korean government is market liberalization and subsequent heightening of competition among the main mobile operators. The country had five mobile providers in 1997. But after a series of mergers during 2001-2001, the number has decreased to three, of which SK Telecom has the largest market share (54 percent), followed by KTF (31 percent), and LG Telecom (14 percent).³⁹⁴ Market competition provides strong incentives for the promotion of new technologies and services. Besides voice telephony and text messaging, all three operators offer a wide variety of services including iMode-like services³⁹⁵ and m-commerce applications such as banking, e-signature, and the purchase of small items based on mobile phone.³⁹⁶

It is from this perspective of intensified market competition as a result of promotional government policies that we should see the increasing uses of mobile technologies in South Korea and the strong consumerist culture that stems from such structural conditions. Under the auspices of the state, Korean mobile providers have played a leading role in the world in launching new services, testing out different standards (e.g., w-CDMA and CDMA2000),³⁹⁷ and the experimentation of 3G services (e.g., IMT-2000).³⁹⁸ Many of these new transformations occurred during or after the Asian Financial Crisis of late 1990s, which expedited the restructuring of Korean economy while further enhancing the role of the state.³⁹⁹ Besides posing challenges to existing economic structure, the growth of the wireless market also helps large *chaebols* like Samsung and LG to gather new technological and economic muscles.

3.3.2b. Personal Uses

More than Japan and China, rigid hierarchies and collectivism characterize contemporary social relations in Korea following its Confucian tradition.⁴⁰⁰ Such relations are most prototypical in Korean

³⁹³ Yang (2003); "Information Ministry plans 'Ubiquitous Korea' by 2007," *Korea Times*.

³⁹⁴ "SK Telecom dominates mobile phone market (in Korean)," *Digital Times*.

³⁹⁵ These include SK Telecom's "nate," KTF's "magic n," and LG Telecom's "ez-i," which enable Web-browsing and information exchange based on special versions of web pages designed for cellular phones.

³⁹⁶ Lipp (2003).

³⁹⁷ MIC Report (2003, p. 20).

³⁹⁸ Park and Chang (2004).

³⁹⁹ Chang, S-J. (2003).

⁴⁰⁰ Kim, K.D. (1993); Kim, S.-D. (2002).

families, where power authority resides squarely with older males. They also pervade friendship networks, peer groups, and people connected by blood ties, regional ties, and school ties, often under the rubric of the cultural notion of *cheong*.⁴⁰¹ According to Kyong-Won Yoon, “Cheong is an expression of affective and attached relationships between people closely related to one another.”⁴⁰² It is “an extended form of familism” maintained by deep commitment and prolonged communication that last many years and decades.⁴⁰³ Shin-Dong Kim maintains that a distinct feature of Korea’s hierarchical social structure is its “one-way, top-down execution of social power” as manifested by a common sight of “a senior person speaking, surrounded by many juniors.”⁴⁰⁴

Based on survey data, personal interview, and field observation, Shi-Dong Kim finds that the diffusion of mobile phone is challenging three sets of existing norms in the personal lives of Koreans.⁴⁰⁵ First, the boundary between the personal and the public is dissolving. Before adopting mobile phone, there are certain “public manners” delineating what and how to talk about private business in public spaces such as buses. However, Kim notes that, “These manners seem suddenly to have evaporated in this era of perpetual contact.”⁴⁰⁶

Second, the ways of social gathering are also changing. Among colleagues who drink together after work, the old custom was that they would call each other using office phones to make arrangements for the evening at around 5 or 6 in the afternoon. The spread of mobile phone not only make such calls easier, and appointments can be made at any time during the evening, it also enables people to go to multiple parties in some sort of a “nomadic” life.⁴⁰⁷ The same applies to lovers. Previously, people would make appointment for the next date at the end of a romantic gathering. Now, young lovers say “call me later” instead.⁴⁰⁸ The notion of time is therefore becoming more flexible with these easy calls and easy appointments.

Third, as people observe in Japan, mobile phone also enable teenagers to gain more autonomy from their parents, who can no longer keep surveillance as they could with wired telephone at home. Shin-Dong Kim’s analyses, however, also suggest that, “hierarchical and collective characteristics seem to

⁴⁰¹ Alford (1999); Yoon (2003a).

⁴⁰² Yoon (2003b, p. 327).

⁴⁰³ Ibid, p. 328.

⁴⁰⁴ Kim, S.-D. (2002, p. 68).

⁴⁰⁵ Ibid.

⁴⁰⁶ Ibid, p. 65.

⁴⁰⁷ Ibid, pp. 70-71.

⁴⁰⁸ Ibid, p. 73.

provide conditions that are ripe for fast diffusion.”⁴⁰⁹ “Collective orientation is acquired over a rather long time period through various stages of socialization... the desire to be available any time at any place caused them (Koreans) to buy the instrument of nomadic life.”⁴¹⁰

In an ethnographic study, Kyongwon Yoon examines mobile phone and social practices of ordinary (or “mainstream”) secondary school students in Seoul. We will discuss this study in more detail in Section IV. But it is important to point out here that Yoon finds a mostly confirmatory relationship between the social ties facilitated by mobile phone and existing power structures of family, school, and youth peer groups which he sees as part of the traditional *cheong* networks.⁴¹¹ He even goes on to argue that the mobile phone actually “immobilizes” youngsters within these existing social networks.⁴¹²

An interesting observation made by Yoon shows the appropriation of the mobile phone to reproduce father’s authority in Korean families, where the mother and the children are also attached to certain fixed places in this structure of intimate relationships. As he found out,

“the detailed mobile parenting is likely to be carried out by the mother, while the father has more fundamental control of all family members. Some fathers do not call their children directly, but call their wife at home and ask her to track down their children by calling him/her: ‘It’s unusual to have a call from my dad. If he has anything to talk to me about, he calls my mom at home and then my mom calls my mobile phone.’ This mode of contact is perhaps rooted in traditional patriarchal communication whereby fathers’ contact with children is usually mediated by the ‘domestic person’, the mother.”⁴¹³

3.3.2c. Professional Uses

Through his observations, Shin-Dong Kim found that, during work hours, “Managers can constantly check if their salespersons are working properly outside the company, while employees find less

⁴⁰⁹ Ibid, p. 72.

⁴¹⁰ Ibid. pp. 71-72.

⁴¹¹ Ibid, p. 329. *Cheong* is one of the oldest traditional values in Korea that centers and models on intimate social relationship at home. It is pervasive in traditional Korean social networks such as those among people from the same school or the same region.

⁴¹² Ibid.

⁴¹³ Ibid, p. 334.

opportunity to slacken off.”⁴¹⁴ One example is the n-Zone service at use in Samsung Electronics,⁴¹⁵ where workers get automatic forwarding of fixed-line phone calls to their mobile phones when they are away from their desks. To reach their colleagues, they only need to dial the last four digits on their handsets as if they were using traditional wired intra-organizational networks. Samsung Electronics and KTF jointly developed this mobile work phone system. While still in an initial stage of development, such service is becoming popular among corporations due to its promise of improving work efficiency at inexpensive price. Workers subscribing to n-Zone can call their co-workers and use wireless Internet with no limitation, and the cost is merely \$1 per month. When calls are placed to people outside the corporation, only the price for wired phone service is charged, which is still cheaper than the cost of wireless phone calls. Until 2003, Samsung Electronics had launched this service in their headquarters in Seoul and Suwon. It was reported that they plan to extend n-Zone to many other plants.⁴¹⁶

Other institutions using similar services include KAIST (Korea Advanced Institute of Science and Technology) and Daewoo Ship Construction. Currently, about 1,000 staffs of KAIST are subscribers and it would be extended to about 7,000 students at KAIST.⁴¹⁷ Another service in workplace is Bizfree from KT, which connects the offices in other locations (i.e., branches) as if they were in the same building.⁴¹⁸

Korea also leads the world in building “m-government” since November 2002. The goal is to allow people to access administrative documents and obtain public services through mobile handsets, PDA and other portable devices.⁴¹⁹

Finally, there is a tendency that communication in the workplace is spilling over into people’s personal lives. Supported by significant statistical differences, Shin-Dong Kim finds that, “Users of mobile phones were more active in getting together with their colleagues, participated more in after-work drinking occasions, considered life at work more important than private/family life” in comparison with those who do not use the mobile phone.⁴²⁰

⁴¹⁴ Kim, S.-D. (2002, p. 73).

⁴¹⁵ Ha (2002).

⁴¹⁶ Ibid.

⁴¹⁷ Ibid.

⁴¹⁸ Han (2001).

⁴¹⁹ Yang (2003).

⁴²⁰ Kim, S.-D. (2002, p. 71).

3.3.2d. Summary for South Korea

1. **A Market of Intense Competition** – Korea’s mobile market emerges with heightened competition among the three mobile operators: SK Telecom, KTF, and LG Telecom. Although 70 percent of households were already equipped with broadband Internet connection, 78 percent of Koreans above the age of 15 were mobile subscribers by 2003. Hence, unlike Japan, market growth in South Korea should be contributed more to market competition and the consequent active promotion of mobile technologies.
2. **The Central Role of the State** – The Korean government plays a major role in fostering the country’s mobile technology industry. It identifies mobile telecommunications as a key strategic industry, directs the liberalization path of the market, and encourages experimentation with new technologies and services. One of the major state-led projects is “u-Korea (or ubiquitous Korea).” There is also active progress in “m-government,” whose goal is to allow people to access administrative materials and obtain public services through mobile devices.
3. **The Strengthening of Old Networks** – Observational, interview, and survey data show that mobile phone usage strengthens existing social networks in South Korea including families, friends, and co-workers. This is best demonstrated in Yoon’s study of “mainstream” high school students in Seoul where he argues that mobile phone helps reinforce the traditional Confucian notion of *cheong* among teenagers and therefore “immobilize” them within the existing structures of family, school, and peer groups. At the workplace, large *cheabols* use mobile technologies to control their distributive workforce from salespersons to truck drivers. A survey also shows that mobile users tend to network more with their colleagues in after-work drinking occasions.
4. **Existing Norms Being Challenged** – Shi-Dong Kim contends that the spread of mobile phone also causes existing social norms to change. People care less about “manners” in public spaces. They are adopting a “nomadic” way of life by roaming around the city for social gatherings. And teenagers are seeking new autonomy with the gadget. These are major

changes particularly in Korea because the society is characterized by “one-way, top-down execution of social power.”

3.3.3. *The Philippines*

As introduced in Section II, the mobile phone has been spreading rather quickly in the Philippines at the turn of the century, but the diffusion is rather limited as mobile subscribers account for only 25 percent of the national population by the end of 2003. To the almost 40 percent of Filipinos who live on a US\$1 daily income,⁴²¹ mobile phone remains largely an unrealistic dream. But to those at higher socioeconomic status, especially those living in major cities such as Manila, mobile communication has become part of everyday life.

The Filipino government attempted to use mobile phone in innovative ways, such as the “m-government” experiment by the Bureau of Customs to streamline the payment of duties in February 2002.⁴²² However, compared to other states in the Asian Pacific, the Filipino government plays a much less prominent role in promoting the mobile market. Rather, grassroots demand among ordinary Filipinos, especially those residing in Metro Manila, is the key propeller for growth of wireless technologies. In this process, a series of usage patterns have emerged, with particular attachment to low-end services such as free or inexpensive texting and prepaid mobile phone cards, which has much broader implications to the uses of mobile phones in the developing world.

In the following we draw heavily from Vincent Rafael’s analysis (2003) as well as a *New York Times* article by Wayne Arnold (2000), “Manila’s talk of town is mobile,” which was among the first and remains the most representative account about the social uses of mobile phone and texting in the Philippines.

3.3.3a. Manila’s Mobile Mania

Cell phone usage in Metro Manila has long been known as a faddish practice within the global Filipino diaspora. Using Taglish (the urban lingua franca that combines Tagalog, English, and Spanish), a Filipino *balikbayan* (one who resides or works abroad and periodically visits the motherland), remarks:

⁴²¹ Bociurkiw (2001).

⁴²² Hachigian and Wu (2003, p. 88).

HI! WNA B MY TXT PAL? They're everywhere! In the malls, the office, school, the MRT [Manila Railroad Transit], what-have-you, the cell phone mania's on the loose! Why, even Manang Fishball [Mrs. Fishball, a reference to older working-class women who sell fishballs by the side of the road] is texting! I even asked my sisters how important they think they are that they should have cells? Even my nephew in high school has a cell phone. My mom in fact told me that even in his sleep, my brother's got his cell, and even when they have a PLDT [land line] phone in the house, they still use the cell phone.⁴²³

This "cell phone mania," especially centered on texting, was introduced to the general public of the English-speaking world in an influential *New York Times* article:

"Texting?" Yes, texting – as in exchanging short typed messages over a cell phone. All over the Philippines, a verb has been born, and Filipinos use it whether they are speaking English or Tagalog. The difference [between sending e-mail by computers and texting] is that while chatroom denizens sit in contemplative isolation, glued to computer screens, in the Philippines, "texters" are right out in the throng. Malls are infested with shoppers who appear to be navigating by cellular compass. Groups of diners sit ignoring one another, staring down at their phones as if fumbling with rosaries. Commuters, jaywalkers, even mourners – everyone in the Philippines seems to be texting over the phone. ... Faye Siytangco, a 23-year-old airline sales representative, was not surprised when at the wake for a friend's father she saw people bowing their heads and gazing toward folded hands. But when their hands started beeping and their thumbs began to move, she realized to her astonishment that they were not in fact praying. "People were actually sitting there and texting," Siytangco said. "Filipinos don't see it as rude anymore."⁴²⁴

The observation that the mobile handset is almost always attached to the body of Filipino cell phone users leads Rafael to conclude, "[T]he phone becomes part of the hand, the digits an extension of the fingers. In certain cases, the hand takes the place of the mouth, the fingers that of the tongue. One Filipino-American contributing to Plaridel, an on-line discussion group dealing with Philippine politics, referred to a Filipino relative's cell phone as 'almost a new limb'."⁴²⁵

⁴²³ A forwarded text message cited in Rafael (2003, p. 404), English translation by Rafael.

⁴²⁴ Arnold (2000).

⁴²⁵ 2003, p. 406.

Why does the mobile phone become such an object of “mania” in Manila? Rafael goes to explain that there are at least three main reasons. First, it was due to “the perennial difficulty and expense of acquiring land line phone in the Philippines, and the service provided by the Philippine Long Distance Company (PLDT) and the more recent, smaller Bayan Tel is erratic.”⁴²⁶ On a comparative note, the difficulty in installing landline also existed in China, especially during mid- to late-1990s, which contributed to the rapid growth of mobile phone in the Chinese context. Although the Japanese case is very different, the high price of landline subscription is also among the factors that contribute to the phenomenal growth of cell phone and mobile Internet usage in Japan.

Second, the spread of mobile phone in the Philippines was stimulated by the relative low price of the technology as it was appropriated in the social context of this particular country. In more specific terms, “The vast majority of users buy prepaid phone cards that, combined with the relatively low cost of phones (as little as \$50 in open market and half this amount in secondary markets), make wireless communication more accessible and affordable than regular telephones or computers.”⁴²⁷

Finally, adopting cell phones makes a special sense in the Filipino context because they “allow users to reach beyond traffic-clogged streets and serve as an alternative to slow, unreliable, and expensive postal service. Like many Third World countries recently opened to more liberal trade policies, the Philippines shares the paradox of being awash with the latest communication technologies like the cell phone, while being mired in deteriorating infrastructures: roads, postal services, railroads, power generators, and land lines. With the cell phone, one seems able to pass beyond these obstacles. And inasmuch as these broken, state-run infrastructures represent government ineptitude, passing beyond them gives one the sense of overcoming a state long beset by corruption.”⁴²⁸

3.3.3b. Generation Txt

“Texting” has given rise to “an apparently novel social category: *Generation Txt*... An obvious pun on *Generation X*, *Generation Txt* was first used as an advertising gimmick by cell phone providers to

⁴²⁶ Ibid, p. 402.

⁴²⁷ Ibid.

⁴²⁸ Ibid, p. 402-403.

attract young users.”⁴²⁹ It was then picked up and popularized by journalists to refer to young Filipino texters.

The craze for sending text messages by phone started [in 1999] when Globe introduced prepaid cards that enabled students, soldiers [and others] too poor for a long-term subscription to start using cellular phones People quickly figured out how to express themselves on the phone’s alphanumeric keypad “Generation Txt,” as the media dubbed it, was born. Sending text messages does not require making a call. People merely type in a message and the recipient’s phone number, hit the phone’s send key and off it goes to the operator’s message center, which forwards it to the recipient Sending text messages by phone is an irritating skill to master, largely because 26 letters plus punctuation have to be created with only 10 buttons. Typing the letter C, for example, requires pressing the No. 2 button three times; an E is the No. 3 button pressed twice; and so on. After the message is composed it can be sent immediately to the phone number of the recipient, who can respond immediately by the same process. People using phones for text messages have developed a shorthand. “Where are you?” becomes “WRU.” And “See you tonight” becomes “CU 2NYT.” People have different styles of keying in their messages. Some use their index fingers, some one thumb, others both. . . . [Others] tap away with one hand without even looking at [their] phone.⁴³⁰

While so far there is no clear definition for Generation Txt, we can see some common characteristics of this social group. It is, first of all, demarcated by the cell phone subscriber’s unusually high intensity of SMS usage, which means most members of Generation Txt are of younger age.

However, as indicated in the study by Toral (2003) aforementioned in Section II, the most active texters are not teenagers like the *oyayubisoku* (Thumb Tribe) of Japan, but professionals in the mid-30s. Although it is likely that the most active texters in Manila are in their 20s (because the Toral study was nationwide), age seems to be a rather flexible criterion compared to actual mobile phone usage patterns.

⁴²⁹ Ibid, p. 407.

⁴³⁰ Arnold (2000).

Another characteristic associated with Generation Txt is the compact Taglish they use, as seen in the above quotation from Arnold. As Rafael points out that, “[t]his hybrid language follows the demands of the medium itself rather than the idiosyncrasies of its users. The phone companies’ recent introduction of limits on free text messaging, and their assessment of a fee per character of text, has led to the further shortening of words and messages.”⁴³¹ Shorthand Taglish has thus joined high-intensity usage as another major signifier for the Generation Txt identity.

We will return to the case of the Philippines by discussing its youth mobile culture, which overlaps significantly with the culture of this Generation Txt, and even more so with the People Power II movement of 2001, when the sitting president of the country was ousted in a historical event that marks the political potentials of the cell phone.

⁴³¹ Rafael (2003, p. 407).

3.3.4. *China*

This section draws on the fieldwork we conducted in China during summer 2002 and December 2003 – January 2004 as well as journalistic pieces, industry reports, and scholarly writings. The fieldwork included interviews with wireless service providers and small-scale surveys, focus groups, and participant observations about daily mobile phone usage among subscribers from different walks of life (officials, teachers, students, IT-industry employees, and migrant workers) in different cities (Beijing; Wuhan; Guangzhou, Shenzhen, and the Pearl River Delta; Shanghai, Hangzhou, and the Yangzi River Delta).

In the following, we will first review the general pattern of mobile phone and SMS uses in China and how they are shaped under the parameters of state and industry policies. We will then focus on two unique sets of issues about the social uses of mobile phone in China. The first one is the recent movie, *Shouji* (Cell Phone), which reveals the cultural tension between individuation and the sustenance of traditional collectivistic values centered on the family unit. The other distinct phenomenon is the success of Little Smart (*xiaolingtong*), a low-end mobile service supplied by UTStarcom, which turned out to be the largest winner in China's mobile market in 2003.

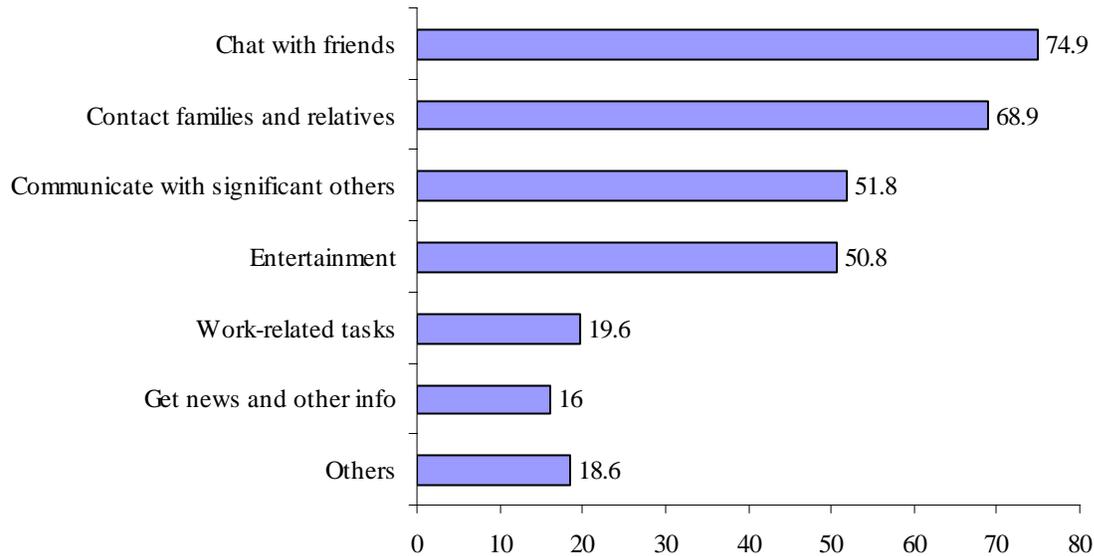
3.3.4a. State-Sponsored Consumerism

In many ways, mobile phone in China plays a similar role as in other societies: like in Japan and South Korea, mobile phone is constructed first and foremost as a commercial object with all kinds of decorations;⁴³² like in the Philippines and most developing countries, it serves as a status symbol, particularly the more advanced, and therefore expensive, models; like probably the rest of the world, mobile phone and SMS have quickly become a youth phenomenon with savvy youngsters, rather than established businessmen, being the most active shapers of the new technology. As previously discussed, SMS is also becoming increasingly popular in China, especially among the younger generation. And it was found in the Sohu-Horizon survey that the new medium is used mostly to maintain personal relationships like chatting with friends, contacting families and friends, and

⁴³² See a collection of cell phone decorations at <http://article.pchome.net/2004/06/21/21149.htm> (accessed June 29, 2004).

communicating with significant others, a pattern quite similar to the “intimate” mobile-based relationships in Japan and Europe.⁴³³

Figure 36. The usage of SMS in China



Source: Sohu-Horizon Survey (October 2003, p. 8).

It is important to note that the Chinese government plays a central role in fostering the consumerist culture and setting up new industry frameworks surrounding wireless communication. Not only is the Chinese state a lead consumer in itself, it also tried to increase market competition in a limited but largely effective manner as seen in South Korea.

The first major event came in 1993 when the second national telecom provider, China Unicom, was established with approval from the State Council to provide mobile services. This move was proved to be instrumental in stimulating market growth since the mid-1990s.⁴³⁴ The turn of century witnessed a series of state-mandated restructuring of the mobile market. First, the wireless communication division of China Telecom was separated in 1997 to form China Mobile, which stripped the incumbent China Telecom of its mobile phone license. Since then, given rapid market growth, China Mobile has become the dominant mobile player of the country. When in May 2002 the state ordered the further dividing up of China Telecom into two, with half of its assets being

⁴³³ Sohu-Horizon Survey (October 2003).

⁴³⁴ Li (2002).

transferred to China Unicom, China Mobile has become the largest telecom operator in terms of its share of the entire telecom market. Its annual revenue was USD 18 billion in 2002.

The Chinese government also exerts its influence by shaping the flow of investment through licensing, approval for Sino-foreign joint ventures, and encouragement for the development of China's own intellectual property, which lies at the heart of future developments in wireless technologies. While the country has adopted existing standards such as GSM and GPRS as a latecomer, China is now actively pursuing its own wireless platforms such as the Time Division Synchronous Code Division Multiple Access (TD-SCDMA) developed jointly by Datang Mobile and Siemens.⁴³⁵ The government has already committed to investing RMB 200 billion (USD 24 billion) to build China's 3G network, and another RMB 200 billion to get its 3G network, handsets and service up and running.⁴³⁶ Another example is the WLAN Authentication and Privacy Infrastructure (WAPI) standard, which also indicates China's ambition in gaining more control over intellectual property by using its huge market as the leverage.⁴³⁷ Alex Lightman also argues that China is likely to play a major role in 4G developments due to its massive broadband infrastructure, the pace of its wireless subscriber growth, and the opportunity to develop its own intellectual property.⁴³⁸ Although these are mostly experiments housed under certain private firms, given the large R&D investment and policy-oriented nature of such experiments, they would have been impossible without strong state support.

Under the auspices of state support, China Mobile and China Unicom emerged to be the two main mobile providers in the country. By 2001, the two large state-owned enterprises had a combined revenue of 161 billion RMB from mobile phone businesses, i.e. 45.7 percent of overall telecom revenue in China and the largest revenue stream in all telecommunication services.⁴³⁹ While strictly speaking, China Mobile and China Unicom are the only players with mobile licenses, the two main fixed-line operators China Telecom and China Netcom (which inherited half of China Telecom's assets in May 2002) also have their "Little Smart (*xiaolingtong*)" services, which will be discussed in more detail in the following. This technology, based on the Personal Handyphone System (PHS) from Japan, is argued to be an "amplified cordless phone." But it is a mobile service in essence

⁴³⁵ Berniker (2004).

⁴³⁶ Ibid.

⁴³⁷ Chen and Bamstad (2004).

⁴³⁸ Lightman (2002, pp. 268-298).

⁴³⁹ Lei (2002).

because, although it is based on fixed-line networks, it allows voice telephony and SMS usually within the city limits.

China has not issued any 3G license yet. But consensus seems to emerge that the consortium between China Mobile and China Netcom will be granted one 3G license, whereas China Telecom and China Unicom will jointly receive another 3G license.⁴⁴⁰ Apparently this is an effort of telecom regulators to reach a balance between a good degree of competition and the minimization of network redundancy.

On the other hand, associated with the wireless boom is a huge manufacture industry that produces handsets, fiber optics, and networking equipment. China has become a world leader in the manufacture and design of cutting-edge mobile technologies. Combining Mainland China and Hong Kong, more than one quarter of the world's mobile phones, including many most recent models, are produced in this country.⁴⁴¹ Major manufacturers include foreign companies such as Motorola, Lucent, Samsung, and Nokia. Qualcomm, among others, is also considering moving its production to China. Foreign companies played a prominent role in the initial stage of China's telecom take-off and they are still playing a leading role in many ways, especially because robust growth in China, as contrasted to slower market growth elsewhere, has made the country a key part of the MNCs' global strategy.⁴⁴²

But their leadership has been decreasing with the rise of a whole new generation of domestic producers such as Huawei in Shenzhen, whose telephone network devices have not only claimed a dominant market share inside China but also started to compete with Cisco head to head in the global market. Ningbo City's Bird is also emerging as China's strongest mobile handset maker. Although it does not enjoy the same amount of global capital, R&D personnel, and control over intellectual property right, Bird, as a domestic player, knows much better the market demand and, above all, it has extensive sales networks throughout China's small cities, with which no foreign company can compete. As a result, while global brand names are popular among the new rich in urban centers, domestic brands are now taking over among the less wealthy and in small cities.

⁴⁴⁰ Hui (2004).

⁴⁴¹ Hale and Hale (2003).

⁴⁴² Zhao (2002).

There are therefore the interestingly contradictory trends that, on the one hand, the handset and equipment market are moving from the dominance of foreign players to more market share by domestic firms. Yet, on the other hand, mobile service provision is moving from the oligopoly of domestic operators to increasing involvement of overseas operators, especially after China entered WTO, when foreign firms are expected to be allowed to hold up to 49 percent of the stocks of a Chinese telecom company.

3.3.4b. *Shouji*, the Blockbuster

An interesting development in China is that the social uses of mobile phone have been synthetically captured in a recent movie, *Shouji* (i.e. Cell Phone, or literally Hand Phone), released during the Spring Festival season of 2004. Before mid-March, the movie had earned an extraordinary box office revenue of RMB 53 million.⁴⁴³ It surpassed most Hollywood blockbusters shown in China at the time, a very rare achievement since the country formally started to import American movies in early 1990s. Given its popularity and size of impact, it is not too exaggerative to regard the *Shouji* movie as a milestone signifier for the rise of a mobile phone culture among China's urban populations. And this new cultural formation is most fundamentally characterized by the tension between individualized pursuit for pleasure and traditional social values, especially those attached to the family.

Yuezhi Zhao gives a good summary of the plot:

The movie, *Cell Phone*, directed by popular commercial film director Feng Xiaogang and released at a time of year in China enjoys maximum cinema audiences, constructs a disturbing, dystopian vision around this particular piece of information technology in a comic form. The film's protagonist, a successful middle-aged television talk show host, uses the mobile phone as a tool of deception in order to manage his personal relationships with an estranged wife and liaisons with two mistresses, employing such tricks as lying, turning off the phone and removing the battery pack to create an "out of the service area" effect. The film's message becomes clear, and is eventually articulated by another character, who is also using his mobile phone to deceive his wife: the cell phone is actually a "hand mine," a

⁴⁴³ "Cell Phone gains 53 million yuan at box office," Xinhua Net.

dangerous and destructive weapon that is detrimental to the sustenance of genuine and loving human relationships. By the end, the protagonist finds himself burning his cell phone, only to appear in the next scene enticed by a proposal to be the celebrity endorser of an even more advanced cell phone model.⁴⁴⁴

Several messages are conveyed through this movie, whose commercial success suggests that these messages reflect some widespread social concerns at least among China's new urban middle class. [Movie tickets are expensive in China with the price usually being set at around RMB 30 (approximately USD 3.6). Given the wide spread of piracy, the price of one ticket is equivalent to two or three pirated copies of the movie. Going to movie theatres, as reflected in box office revenue, is therefore largely a middle class activity.] First, the movie presents cell phone as a disruptive device in existing cultural practices. The mobile handset was depicted as interrupting and destroying a full range of relationships from order in the classroom to the flow of business meeting, from activities in the public space to private family lives. It was in the middle of his fury after being repetitively interrupted by cell phone calls that the director of the talk show burst out the punch line that cell phone could become a lethal weapon:

[In an angry tone] Okay, let's make a special episode. Just call it *Cell Phone*..

[Imitating others] "I'm not in the TV Station now." – This kind of bullshit comes so easily from your mouth.

[To Yan Shouyi, the protagonist] Yan Shouyi, hand phone connects with your mouth, and your mouth connects with your heart. Once you get the hand phone, you start to lie.

[To everyone in the meeting] How many shameful secrets are hidden in your hand phones? If we continue this way, the hand phone will no longer be cell phone any more. What is it then? Hand-grenade. It's hand-grenade!

Ironically, this character, who so strongly detested untruthful communication on the cell phone, ended up failing to resist the temptation of extra-marital affairs and starting to cover things up with cell phone maneuvers. His wife eventually found out and, with his marriage falling apart, he sighed:

[Slowly and in a very upset tone] ... Agricultural society is still better. At that time, transportation and communication were both backward. If you went to the capital city for the

⁴⁴⁴ Zhao (2004, p. 275).

Imperial Examination, you left for several years, and all you said about the trip would be taken as fact. But now ... [take out his cell phone] Close, it's so close... so close that I can barely breath.

This dystopian characterization of the cell phone is in fact unusual given the Chinese context in which both the government and the corporations are seeking to promote new technologies and framing them in a positive light. Again, according to Zhao:

... *Cell Phone* offers a fresher perspective on the cultural dimensions of information technologies. It foregrounds human relationships, and most importantly, it refuses to subscribe to a linear notion of technology-driven social progress and a simple correlation between access to information technologies and sustainable human relationships. As the experience of the cell phone empowered individuals demonstrated, connectivity alone does not guarantee one's quality of life.⁴⁴⁵

Second, the movie reflects upon the issue of deception and truthfulness, which is becoming increasingly problematic for China's new middle class who are seeking individual achievement and pleasure in a rapidly transforming society. Yan Shouyi's TV talk show is called "Say One If It's One (*youyi shuoyi*)" mimicking the famous show "Say Honest Things Honestly (*shihua shishuo*)" at China Central Television (CCTV). Audiences love this "honesty" show in part due to the perception that truthfulness has become rare in the media or interpersonal relations. With this growing concern, cell phone plays an interesting, double-edged role because it empowers those who deceive (popular male, middle-age TV celebrities in this case) as well as those who were deceived (i.e., the wives and mistresses).

On the one hand, besides telling lies on the cell phone, the movie shows a full range of tricks for the deceptive protagonist to cover himself up including deleting call logs, removing batteries, and pretending the phone signal was so weak that one could not hear. Yet, on the other hand, the very same technology could be put in the hands of the suspicious wives who could call each other to keep track of their husbands or, worse, in the hands of exploitive mistresses who could now use the cell phone to secretly take pictures or make sound record of intimate activities. In the final showdown, two female victims went to a branch office of China Mobile and obtained complete cell phone logs of

⁴⁴⁵ Ibid, p. 278.

their men. After all, no matter how good you are at lying or deleting flirting SMS messages, the transactions are all recorded by the computers of the mobile phone operator.

Hence, the essence of the story is about how middle-age Chinese urbanites, male or female, struggle to manipulate micro interpersonal relationships to their own advantage. This would, as the movie presents, inevitably clash with existing social norms and values centered on collectivistic social institutions such as the traditional family. Cell phone is therefore only the instrument used by members of the middle class to achieve their personal goals. Very few of these people can change the macro social conditions surrounding them, but to some extent they can make certain difference in their personal lives, for good or for bad, by irresponsibly exploring new possibilities or desperately defending themselves, both with help from the mobile phone.

Not surprisingly, the release of *Shouji* led to many clashes over cell phone usage among couples who saw the movie. In some instances, actual divorce cases were cited.⁴⁴⁶ The most peculiar response was from Cui Yongyuan, the real-world talk show host of “Say Honest Things Honestly” at CCTV. He vehemently criticized the movie for irresponsible depictions and bad taste. He was deeply offended because of the sexual content and the insinuations that he might also be a liar and have similar secret affairs. His overreaction ended up sending more people to see this movie that has now become “controversial.”⁴⁴⁷

Third, rural China is presented as not only a deep background in the movie but also a larger, and almost permanent, structure of traditional family-centered values that keeps interacting with the urbanites. The story starts in 1969 in the middle of the Cultural Revolution when Yan Shouyi, at age 13, biked for miles from his village to place the first phone call in his life. Decades later, as one of the nation’s most famous TV hosts, he would go back to his home village from time to time, where a few people including his brother also began to use cell phone.

The rural/urban interaction came to a climax when Yan’s niece, daughter of a mineworker, came to Beijing to seek her fortune. She failed to get other jobs but became a cell phone salesperson. Here lays the dilemma facing the new middle class: although they have aspiration for more pristine relationships back in the countryside, they still see modern urban life centered on the cell phone as

⁴⁴⁶ “Divorce filed after discovering flirting SMS,” Qianlong News.

⁴⁴⁷ See <http://ent.sina.com.cn/f/cuishouji/index.shtml> for collection of Chinese reports on this controversy.

more attractive. Despite the social problems associated with cell phone, everyone is drawn to it including village people and migrant workers – and these new adopters are happy with the new device. This impression given by the movie, however, is quite contradictory to what our fieldwork suggests regarding the usage of wireless technologies among migrant workers in China’s fast growing coastal cities (we will return to this point).

Fourth, part of the movie’s success has less to do with its inner cultural values than with its sponsors in the mobile phone industry. Heavily commercialized, the movie has product placements everywhere, from the starting byline all the way to the end. References to China Mobile and Motorola appear every few minutes, with some scenes looking just like commercials. The mobile phone industry also helped with promotion. For instance, China Mobile sent short messages about the movie to nearly 100 million subscribers, which according to the movie’s director helped boost box office revenue.⁴⁴⁸ Although the movie raises serious issues about the social uses of mobile phone, it nonetheless shows the invincible power of the new technology and, most important, its comic format is quite entertaining and would likely further push up sales for the mobile phone industry.

Finally, this movie is fundamentally a cultural product by the middle class and for the middle class. While focusing on the micro-level problems generated by cell phone usage, it does not, and cannot, reflect other social issues at more macro levels. Overall, it reifies existing stereotypes among the urban middle class regarding gender – females are always victims or on the defensive – and migrant workers, who are caricaturized in the movie as naïve, foolish, poor, only wanting to make quick money. There is also very little depiction about cell phone usage among the younger generation because the movie’s focus is on well-to-do successful urbanites who drive BMWs, live in spacious, well-decorated homes, and use the most expensive cell phones.

3.3.4c. Mobile Usage Among Migrants

Known as the “floating population,” there are approximately 150 million migrant workers in China who have left the countryside to seek jobs in the cities.⁴⁴⁹ They constitute a critical labor force for the urbanization and modernization processes at large and the development of the mobile phone industry in specific by manning handset factories, building wireless infrastructures, and handling sales and

⁴⁴⁸ “*Cell Phone* gains 53 million yuan at box office,” Xinhua Net.

⁴⁴⁹ Zhang (2001).

distribution networks. While the contribution of migrant labor is seldom acknowledged in urban discourse as reflected in the movie *Cell Phone*, even more so is the role of the floating population as a sizeable consumer group with distinct patterns of troubled usage.⁴⁵⁰

In our fieldwork of summer 2002, we lived with migrant workers in an industrial zone of South China for two weeks and held three focus groups among migrant workers in Shenzhen, Guangzhou, and Zhuhai regarding their telecom usage patterns including those of wireless technologies. A survey was also conducted that included 272 migrant workers purposively sampled from 10 different dialect regions. Although admittedly, these data were collected on a small scale, they nonetheless give a preliminary snapshot of how mobile phone is playing a key part in the everyday life of migrant workers.

The main finding from this study is that, unlike popular perception, migrant workers do actively engage in telecom services of all kinds including the cell phone. They often spend a larger proportion of their income, spare time, and energy on the cell phone in comparison with many long-term urban residents. Yet the services they receive are usually unsatisfactory, and they often feel being mistreated by mobile operators.

The migrant workers that we resided with were junior college graduates from the mountainous regions of northern Guangdong and southern Jiangxi Provinces. Working for a fertilizer company, they lived in an apartment-style dormitory equipped with a fixed-line telephone. There was also a phone that they could use at their workplace, which was 20 minutes away by bike. Yet, they all still have their own cell phones. As the project started, one of them just bought a new cell phone with color screen using his savings for an entire year. He told us he spent many hours in the past few months to search for the best deal. “Although it’s pricey, I feel pretty good about it because everyone says that’s a good deal.”

To this migrant worker, owning a cell phone is less a rational choice for the need to communicate than a social and psychological need to achieve this status symbol so that he could show it off in front of friends or even strangers that he would meet in the public space. Like industrial workers in the early twentieth century would save for years and buy a personal timepiece, these migrant workers

⁴⁵⁰ Ibid. In Zhang’s ethnographic account, she made frequent observations that migrant entrepreneurs from Wenzhou used pager and cell phone while working and living in Beijing.

also attach much non-instrumental values to the cell phone. For them, obtaining the cell phone is a milestone indicating success, not only financially but also culturally in term of one's merge with the urban place.

But there is a critical difference between a mobile phone and a mechanic wristwatch: whereas both entail a sizeable initial cost, the mobile phone requires much more. Even if one is using pre-paid cell phone cards, the expenses continue to accumulate as long as the cell phone is being used. The more you call, the more you spend. Or if you do not use it much, the purchase of the handset would be unjustified. Thus it was not surprising that migrant workers in the survey spent an average monthly cost of RMB 309.5 (or USD 37.4), which accounts for 20.2 percent of their total income. In contrast, while long-term residents have a higher average income, they only spend 13.8 percent of their monthly income on the cell phone. Furthermore, as new cell phones come out, one's handset would become outdated in a couple years. One would be propelled to update the handset, which according to the survey costs approximately RMB 1912.4 (USD 231.1) each. Hence it starts again, the vicious circle of conspicuous consumption.

Most importantly, although migrant workers spend a high proportion of their income on mobile phone-related expenses, they are often subject to mistreatment while using the services. All participants in the three focus groups we conducted in Shenzhen, Zhuhai, and Guangzhou agreed that the mobile services they received were unsatisfactory. Voice telephony was over-priced. Customer service was lousy with billing disputes often unresolved and their complaints neglected. Because of the lack of security in places where migrant workers concentrate, their cell phones were easily stolen. There are also unscrupulous individuals or organizations that would use cell phone and SMS to deceive migrant workers such as offering them fake jobs after collecting contact information in local labor markets. The list of pitfalls and ordeals goes on. But the point is clear that, although the technical infrastructure for mobile phones is established, the social infrastructure supporting mobile phone usage among migrant workers is nearly non-existent. This is because, from service providers to local governments, attention is often paid exclusively to the urban middle class and multinational corporations, and the fact is ignored that migrants are becoming an increasingly important group of consumers in the mobile market.

The absence of this larger social infrastructure, on the other hand, gives a more profound explanation for the boom of cell phone among migrant workers. In the focus groups, participants in different

cities report widespread problems in using fixed-line telephone. While our junior-college-graduated roommates were lucky to live in apartment-style dormitories equipped with landline telephone, the majority of the focus group participants only had high school or junior high school diplomas and they had to live in a much worse condition with no shared home phone. Meanwhile, several of them reported restrictions on the usage of office phone, especially in restaurants where they worked as waitresses. It is a common practice that the migrants are barred from using the work phone during business hours. One boss required employee to pay a fee every time they use the work phone. In two other instances, the migrant workers were allowed to receive phone calls but not to initiate calls. This leaves public phone booths the only choice for migrants if they need to get connected with friends and families for both emotional attachment and job-related information. Yet, the phone booths were notorious for security reasons because they often were designed with little protection for privacy. Migrant workers often had the PIN number of their pre-paid phone cards stolen while using the public pay phones.

With all these problems in accessing home phone, office phone, and public phone, having one's own cell phone is of obvious advantage. In this sense, part of the high demand for cell phone among migrant workers has to do with the constraints of the larger social structure. By choosing or being left with no choice but to adopt the cell phone under these circumstances, migrant workers may gain limited power in controlling when, where, and how they would communicate with others. Sometimes, they would make rational decisions such as using SMS more to save money. But at a higher level, this is not a rational system for migrant workers, who have to pay more and get less, who have to go through a series of hardships that ordinary long-term urbanites do not face while using the new technology. While the migrant workers are active in pursuing their urban dream in which cell phone is now a centerpiece, unfortunately, their micro solutions cannot and will not solve the macro problems.

3.3.4d. The Success of Little Smart

It was in summer 2002 when we first encountered the wireless service Little Smart (or Xiaolingtong) on a fieldtrip in Xichang, a city located deeply in China's mountainous southwest. To our surprise, we saw local people wearing two wireless handsets on the belt – one was a regular cell phone from China Mobile or China Unicom, the other a Little Smart handset provided by the local branch of China Telecom. A man told me his Little Smart could be unreliable, which was why he still kept his

GSM phone for important calls, like those to his boss. But most of the time, he used the Little Smart phone. As long as he was within the city limits, the signal was okay. And, most important, it was really inexpensive.

Since then, we met more Little Smart subscribers across the country in south, east, and central China, several of whom were retirees in big cities living on fixed budget. Some of them used to be pre-paid cellular subscribers, but shifted to Little Smart. This was the case for Mr. Lu, a widowed pensioner living by himself in the eastern city of Ningbo. Without a landline at home, Little Smart was his main line when we met him in December 2003. Apparently Little Smart signal had been much improved in this city that he didn't worry about reliability. Hence he had only one phone in his pocket, a Little Smart handset, which at first glance looked just like another slick cell phone.

To start using Little Smart, an average user like Mr. Lu would need to pay around RMB 250 (i.e. USD 30.2) for the handset and put a deposit of RMB 200 (i.e. USD 24.2) in the account. All together, this is about a quarter of the average cost for regular cell phone handset among migrant workers in the three southern cities that we surveyed in 2002. The operational cost is also much lower with per minute rates being 50 to 75 percent lower than regular mobile services.⁴⁵¹ Unlike regular cell phone service, one does not pay while receiving a call. With Little Smart, one can use discounted IP service for domestic long-distance call at a price even less expensive than prepaid IP phone cards for fixed-line telephony.⁴⁵² Mr. Lu's Little Smart handset had SMS function, but he never used it because, he said, the characters were too small to see. Neither did he know how to compose a message using the tiny keypad. And, most importantly, he didn't feel he would need to use it because with the inexpensive voice phone call, everything could be taken care of.

Little Smart has been a big hit in China since 2002 with a sales record of USD 2 billion in 2003, when 25 million subscribers were added to the Little Smart business, surpassing the growth of both China Mobile and China Unicom.⁴⁵³ By the end of June 2004, the number of Little Smart users had reached 50 million.⁴⁵⁴ Not only is the service popular in nearly 400 cities and 31 provinces in China, but it has also expanded to Southeast Asia, South Asia, Latin America, and Africa.⁴⁵⁵

⁴⁵¹ "Cut-price 'Little Smart' a big hit in China," *China Daily*.

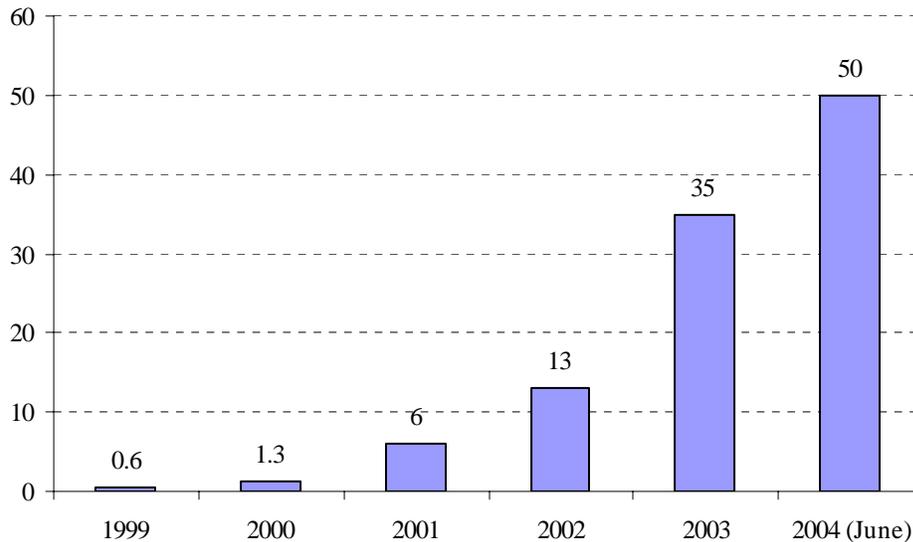
⁴⁵² Interview.

⁴⁵³ China Mobile and China Unicom each had around 21 million new subscribers in 2003. See "The dream team of UTStarcom," *Global Entrepreneur*.

⁴⁵⁴ "China reaches 50 million PAS subscribers," PR Newswire.

⁴⁵⁵ Kuo (2003).

Figure 37. The growth of Little Smart subscribers in China, 1999-2003 (million)



Source: Liu (2004, p. 1). *Research on Market Dynamics of Little Smart in China*, TeleInfo Institute, China Academy of Telecommunications Research of MII, March 2004.

Most significantly, Little Smart offers a new solution to bring wireless technology to the less wealthy, many of whom have strong information demand coupled with limited purchasing power. It used to be the case that pre-paid cell phone cards and SMS offered partial solutions to this problem. But as China's Little Smart demonstrates, cost can be further reduced from the pre-paid basis; whereas SMS, although popular among youth, could only diffuse to the literate and it is usually difficult for the older generation to learn text messaging. What is needed among the majority of these potential low-end users is really inexpensive voice telephony with certain mobility in a limited geographic scope. Little Smart happens to be the technology that meets this need.

The success of Little Smart is also, in some ways, a uniquely Chinese phenomenon that would have been impossible without the combination of three factors:

- (1) The enormous size of the low-income market, including migrant workers and petty entrepreneurs in the cities, the growing population of pensioners who need a "life line," and laid-off state-owned-enterprise workers, many of whom are seeking new jobs and have increased demand for information;

- (2) The telecom regulatory regime that stripped fixed-line operators of their mobile phone license, which happened at the precise time when the fixed-line operators were also listed in stock markets, while at the same time mobile communications are the strongest growth point.
- (3) The central role of UTStarcom, a private firm founded and managed by former Chinese students in the United States. The company now has headquarters on both sides of the Pacific Ocean. While other Chinese IT firms such as Huawei and Zhongxin also started to provide Little Smart equipment, UTStarcom was the first and is still playing a leading role in the Little Smart business.

Little Smart was first launched in China in 1997. Its technical backbone is a variant of the Wireless Local Loop (WLL) technology that offers “a micro-cellular system that provides connectivity between the end user and the local switching center (local loop or ‘last mile’) where traditionally, copper wires had been used to connect these locations.”⁴⁵⁶ It is based on the PAS (Personal Access System) that uses the global PHS (Personal Handyphone System) standard, first developed and deployed in Japan. PAS offers consumers “the convenience of a mobile phone, with the cost advantages of a fixed-line phone.”⁴⁵⁷

Because PAS was initially designed to cover small areas such as a building or residential complex,⁴⁵⁸ it has several technical advantages for cost reduction. First, it uses switches for fixed-line network and “requires no modification to the central switching office, nor does it require investing in mobile switching hardware.”⁴⁵⁹ Second, it is scalable to fit areas of different user density, which varies greatly within and around China’s city space.⁴⁶⁰ Third, it is relatively easy to set up. To deploy Little Smart in a large city of 10 to 12 million potential users, it normally takes three to four months.⁴⁶¹

The beauty of the technology is clear when it is deployed by fixed-line operators as a way to extend landline services.⁴⁶² They can attract more subscribers – 50 million of them by June 2004 – while only need to make some small changes in the existing network. Lots of labor can be saved to lay the last mile of copper. And new business opportunities can be opened up for them to play this role of

⁴⁵⁶ Frost & Sullivan (2003, p. 3).

⁴⁵⁷ Ibid, p. 6.

⁴⁵⁸ “The dream team of UTStarcom,” *Global Entrepreneur*.

⁴⁵⁹ Frost & Sullivan (2003, p. 7).

⁴⁶⁰ Ibid.

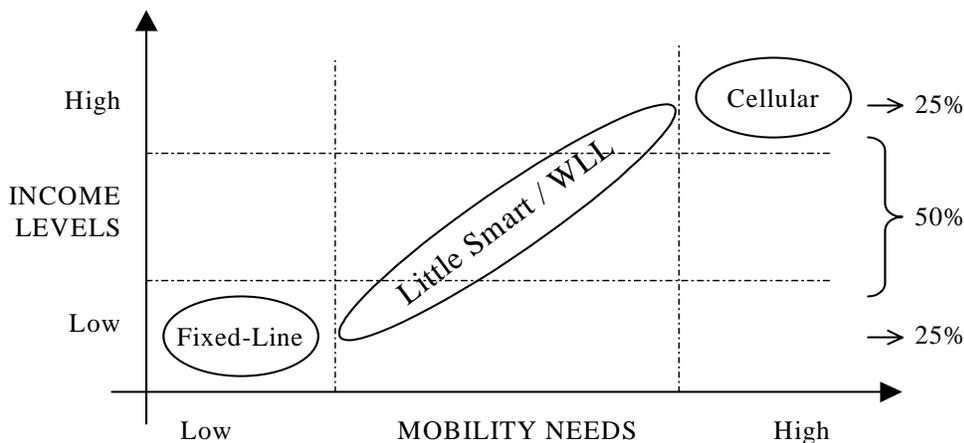
⁴⁶¹ Ibid, p. 5.

⁴⁶² Not by wireless operators as an inexpensive mobile phone though, as was practiced in Japan, which would enhance cost. See more discussions in the following section.

quasi-mobile service provider. This is exactly what China Telecom needs after it lost its mobile communication division and its own license of mobile service provision. As Mr. Ying Wu, CEO of UTStarcom China says, “The Key was that when China Telecom lost their mobile business, they lost their growth point.” “We saw a golden opportunity: Sure, the top 20 percent income earners will be cellular subscribers. But that leaves the middle 50 percent – 650 million people – who need wireless service but for whom affordability is the issue.”⁴⁶³ This business model of offering limited mobile services to the market with limited income is represented in Figure 38.

Figure 38. The market opportunity for Little Smart and Wireless Local Loop

Source: Frost & Sullivan (2003, p. 2).



The most serious challenge for Little Smart has less to do with the technology, the market, or the lack of institutional support than the strong resistance of mobile providers and the vicissitudes of telecom policymaking in China. China Mobile and China Unicom both campaigned hard against Little Smart due to fear of cutthroat price competition in the low-end market.⁴⁶⁴ Moreover, central decision-makers in Beijing did not show clear support in the beginning because they were not sure if China should adopt this “outdated” technology as it was launched in Japan years ago and proven to be less than successful.⁴⁶⁵

Under these circumstances, the spread of Little Smart followed a model that is later known as “countryside surrounding cities (*nongcun baowei chengshi*),” drawing from Mao’s famous military

⁴⁶³ Kuo (2003).

⁴⁶⁴ Interview.

⁴⁶⁵ Interview.

strategy during the communist revolution. Although to be more precise Little Smart started in small cities and towns, rather than the rural countryside, this metaphor captures the pattern that the service was not available in large urban centers until a rather late stage of development. This is not a deliberate choice of UTStarcom or China Telecom though. In part, it was because the former Ministry of Post and Telecommunications imported PAS technology in 1996 under the promise that it would help enhance teledensity in China's mountainous areas.⁴⁶⁶ Resistance to Little Smart is considerably smaller in these areas, while at the same time national decision-makers are also more tolerant to accept it as temporary experiments in small cities, where teledensity is low anyway. This was how the first trial site of Little Smart was built in the small city of Yuhang in east China. It then expanded to other small cities and towns in mountainous areas. Kunming and Xi'an are the first two provincial capitals to adopt Little Smart. Both of them are located in inland, western China. Beijing, Guangzhou, and Shanghai were the last to build Little Smart, with the technology finally been introduced in the urban areas of Shanghai in May 2004.⁴⁶⁷

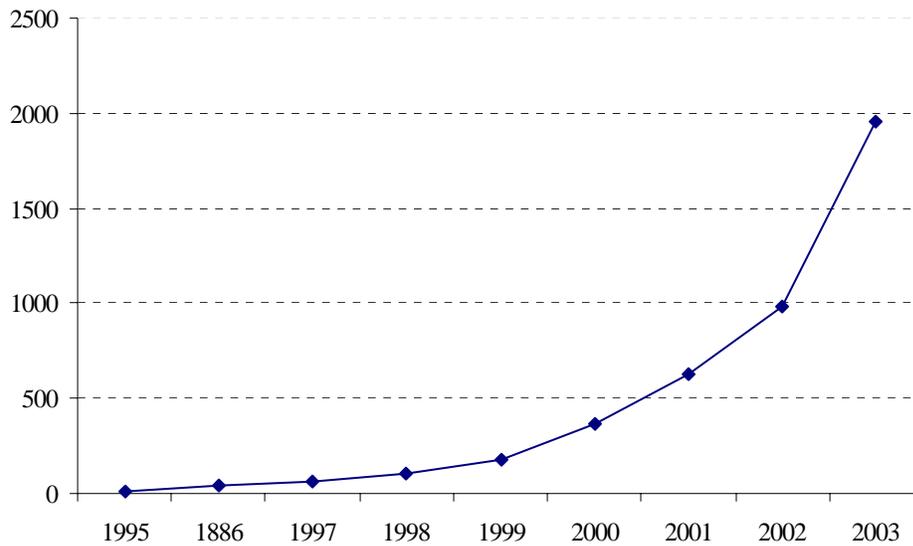
According to Duncan Clark at BDA China, the process of legalizing Little Smart has gone "from a policy of 'grow quietly, but grow' to one of almost no regulation at all." "After service launched in Beijing, MII's new minister, Wang Xuedong, pronounced that Little Smart appears to be the people's choice, and the ministry line now is, 'We will neither support nor hinder.'"⁴⁶⁸ This non-intervention policy effectively counters the efforts of China Mobile and China Unicom to stop the spread of Little Smart, leading to phenomenal growth as reflected by the increase of UTStarcom's gross revenue since 1999 (See Figure 39).

⁴⁶⁶ Liu (2004, pp. 3-4).

⁴⁶⁷ Interview.

⁴⁶⁸ Kuo (2003).

Figure 39. The growth of UTStarcom in terms of gross revenue, 1995-2003 (million USD)



Source: Liu, H. (2004). *Research on Market Dynamics of Little Smart in China*. TeleInfo Institute, China Academy of Telecommunications Research of MII, March 2004.

While the Little Smart business is booming, UTStarcom's market share as the equipment provider has actually declined to 65-70 percent, whereas domestic companies like Huawei and Zhongxin are catching up.⁴⁶⁹ This is unsurprising because the low-end market is so huge and rapidly growing that other manufacturers simply cannot resist the temptation. UTStarcom has been taking this new competition very well because its corporate strategy has been one of significant diversity from the beginning, with its broadband networking systems being one of the more recent fast-growing revenue sources.⁴⁷⁰ Yet more importantly, the multiplication of suppliers shows that Little Smart has become an entire industry in itself with a complete chain of production that no one can ignore, carrying with it considerable political clout. This is most evident as shown by the increasing number of Little Smart handset models. Up to 2003, 25 different manufacturers produced Little Smart handsets.⁴⁷¹ In total, there were more than 100 models designed for Little Smart including those with digital camera, flashlight, Internet browser, and color LCD display⁴⁷² as well as UTStarcom's own dual-mode handset that allows customers to switch between Little Smart and GSM/CDMA.⁴⁷³

⁴⁶⁹ Liu (2004).

⁴⁷⁰ Interview.

⁴⁷¹ Kuo (2003).

⁴⁷² Liu (2003).

⁴⁷³ See www.utstarcom.com.

At the center of the Little Smart boom is UTStarcom, a global operation with localized focus. This is a centerpiece of its success because only by utilizing global networks could the company develop high-tech products, explore new markets, and most importantly raise significant external investments from stock markets and venture capitalists. Meanwhile, in order to enter a particular market and maintain growth rates, one also has to be very familiar with local circumstances, from market demands to potential competitors to telecom policy implementation in different locales. UTStarcom has built its strength on both levels, forming a model of global operation that is quite unique among Chinese telecom companies.

Headquartered in Alameda, California, the company has eight R&D centers around the world: three in the United States (New Jersey, California, and Chicago), four in China (Shenzhen, Hangzhou, Hefei, and Beijing), and one in India. It has 30 branch offices not only in China and the US but also in Japan, Germany, India, Australia, Israel, and Vietnam. Until April 2003, UTStarcom had close to 4200 employees, including about 700 in the US and 3400 in China.⁴⁷⁴ In 2003, it helped Vietnam launch its “Cityphone” in Hanoi and Ho Chi Minh City⁴⁷⁵ while also established UTStarcom India with an initial investment of USD 50 million. Besides Little Smart, UTStarcom provides broadband access solution, IP Softswitch, and 3G mobile communication systems. It has the contract to supply core networking, softswitch, and ADSL solutions for Japan’s Yahoo! BB and, in so doing, it is now the largest broadband equipment provider in Japan.⁴⁷⁶

The senior management team of UTStarcom consists of four Chinese core decision-makers – Hung Liang Lu, Ying Wu, Bill Huang, and Johnny Chou – all of whom were former overseas Chinese students in the United States. The remaining six members of the management team are of American and European decent including mostly managers from high-tech companies in the United States such as Lucent, 3M, Cisco, as well as a former official from the US Commerce Department during the first Bush Administration.⁴⁷⁷

The Chairman and CEO, Hung Liang Lu, was born in Taiwan. He moved to Japan at age six, and went to UC Berkeley to study civil engineering, where he started to gain experience in the business world. Besides founding Unitech before it was merged with Ying Wu’s Starcom, Lu has critical

⁴⁷⁴ Ibid.

⁴⁷⁵ “Cut-price ‘Little Smart’ a big hit in China,” *China Daily*.

⁴⁷⁶ “The dream team of UTStarcom,” *Global Entrepreneur*.

⁴⁷⁷ See bios at http://www.utstar.com/Company/Management_Team/ (accessed July 11, 2004).

Japanese connections in addition to his many experiences in northern California. Since the Berkeley years, he has been a close friend and business partner of Masayoshi Son, Japan's leading IT investor, who regards Lu as his "blood brother."⁴⁷⁸ Son's Softbank provided the first major venture capital of USD 30 million for UTStarcom.⁴⁷⁹ He also brought UTStarcom into the Japanese market as the main broadband equipment provider for Yahoo! BB.

Ying Wu, the Vice Chairman and CEO of UTStarcom China, was the founder of Starcom, Inc. Wu grew up in Beijing. He studied in Beijing Industrial University and went to New Jersey Institute of Technology, where he earned his M.S. in electric engineering. Before founding Starcom, he worked for AT&T Bell Labs and Bellcore (now Telcordia). Wu was the person who saw most clearly that China Telecom would need to seek its own wireless growth point after its the mobile communication division is detached.⁴⁸⁰

Bill Huang, the Chief Technology Officer, graduated from Huazhong University of Science and Technology in central China and the University of Illinois. He played a key role in adjusting the PAS system to fit the Chinese market using the model of "amplified cordless phone" and creating the WACOS softswitch solution that allows Little Smart to fit China's diverse network environments.⁴⁸¹

The fourth core decision-maker is Johnny Chou, the Chief Operational Officer, who studied in Shanghai's Fudan University and received an M.S. in Engineering from Princeton University. He was Director for wireless systems and software at Lucent before joining UTStarcom.

It was this team of Chinese returnees from the United States who continue to play an active role in technological and entrepreneurial activities on both sides of the Pacific that makes the Little Smart phenomenon possible. Equipped with technical know-how and business experiences accumulated in America, this team also knows the Chinese market and, above all, how to deal with telecom regulators in China. When the MPT opened the bid for access network solution in 1996, there were 13 companies with different technologies in the competition. At the end, PAS/Little Smart was selected in 1999, allowing UTStarcom to seize the most valuable opportunity in China's low-end wireless market created by the telecom reform.

⁴⁷⁸ "The dream team of UTStarcom," *Global Entrepreneur*.

⁴⁷⁹ Ibid.

⁴⁸⁰ Ibid.

⁴⁸¹ Ibid.

Although with increasing reliability and multi-functional handsets Little Smart is starting to attract high-end users, by and large it is still perceived as a poor people's mobile phone.⁴⁸² While it normally still does not work outside city limits, the general perception draws directly from memories a few years ago when the system was first launched in smaller cities. There users remember that, not too long ago, they had to walk in circles or wave the handset in open space to maintain signal, and that the device did not work in moving vehicles including bikes. As a result, in some places people still refer to Little Smart as "Wei Wei Call" because poor signal used to make users keep saying "Wei? Wei?" (Hello? Hello?).⁴⁸³

It is understandable that from a business viewpoint some would like to change this old stereotype of Little Smart by making the technology more appealing to high-end users. However, from the perspective of larger social benefits, bringing mobility to the masses at an inexpensive price is precisely what a market like China needs. As previously mentioned, when MPT decided to import PAS in 1996, it was for the purpose of bringing low-cost telephony to less wealthy residents living in the mountainous areas.⁴⁸⁴ The cutting of price is critical in this context because the nation's per capita annual expense on transportation and communication was merely RMB 626 (USD 75.6) in the urban areas during 2002.⁴⁸⁵ While an ordinary cellular phone would easily cost RMB 2000 (USD 121.8), survey results show that close to one quarter of potential new mobile subscribers hope to spend less than RMB 1000 on new handsets.⁴⁸⁶

Little Smart may play a particularly vital role in meeting the informational needs of urban underclass, many of whom such as laid-off workers, small business owners, and migrant workers, were pager subscribers even after better-off urbanites started to adopt cellular phones since late 1990s.⁴⁸⁷ China had the world's largest pager subscriber population of 50 million back in 2000. Since then the figure has been constantly dropping due to the spread of cell phones but more importantly due to the lack of institutional support for pager operators. China Unicom, the country's largest pager operator, was

⁴⁸² Liu (2004, p. 18).

⁴⁸³ Kuo (2003).

⁴⁸⁴ Liu (2004, p. 1).

⁴⁸⁵ Ibid, p. 18.

⁴⁸⁶ *Mobile subscribers in China 2002*. BDA China.

⁴⁸⁷ Fieldwork observations.

reportedly suffering from high disconnection rates and low profit margin, and consequently many local pager companies are abandoning the business and their less wealthy users all at once.⁴⁸⁸

This, however, does not mean that the low-end market would disappear. Rather, the steep decline of pager subscription is among the factors that contribute to the phenomenal success of Little Smart. A large number of low-end users also tend to have limited physical mobility, which means services such as roaming would be of less importance to this user group. Hence UTStarcom draws the conclusion that:

Despite its geographical size, China tends to have an extremely localized culture in the sense that the majority of work and social activities for citizens revolve around one's immediate environment. According to a recent survey from the China Post, 80 percent of the population spends 80 percent of their time within the city limits, suggesting that the lion's share of demand for mobility solutions will generally remain local. This made the PAS solution all the more attractive for Chinese citizens.⁴⁸⁹

The result is that Little Smart has become an ideal solution for not only high density urban areas but also small towns in the countryside. Again, according to UTStarcom, Little Smart is often adopted in rural areas "as an outright alternative to fixed-line services, offered at a competitive rate, with the added advantage of localized mobility."⁴⁹⁰ It is therefore an effective means to increase teledensity among the low and middle-income populations.

3.3.4e. Summary for China

1. **Technological Leapfrogging** – China now has the world's largest mobile phone user population (280 million by 2003), many of whom do not even have a landline. The leap also happens in the infrastructure as the country built a national broadband network although many places are not yet connected via copper cables. This leapfrogging however does not mean the Chinese mobile market is as mature as those of Japan or Korea. Penetration in total population (21.8 percent) is still low. Many people are using pre-paid plans and SMS as ways

⁴⁸⁸ Interviews.

⁴⁸⁹ China Telecom case study, UTStarcom, p. 3.

⁴⁹⁰ Ibid.

to control budget. High-end services, though increasingly available, only account for a small fraction of gross revenue.

2. **The Success of Little Smart** – Little Smart (*xiaolingtong*) is a limited wireless phone service that allows subscribers to use mobile phones within the boundaries their respective cities while paying only the price of a landline. Originally invented in Japan, it was brought to China by UTStarcom, which improved the system for China Telecom and became the main player in the Little Smart market. The success of Little Smart has to do with specific policy changes in the country's telecom reform process. It also owes a lot to the positioning of UTStarcom as a “glocal” IT player. But most importantly, it reflects strong demand in the Chinese society for inexpensive yet still mobile technologies, a phenomenon with great implications for the rest of the developing world.

3. **Middle Class Consumerism** – The mobile phone has become a centerpiece of the consumer culture among China's urban middle class. Like in Japan and South Korea, handsets are associated with fancy decorations and ring tones. But like in the Philippines, they often demonstrate social status and personal wealth in the Chinese context. Mobile phone as an object of conspicuous consumption has been widely celebrated in popular media including the recent blockbuster, *Shouji* (Cell Phone).

4. **The Tension Between Individuation and Family/Community** – What the *Shouji* movie most fundamentally reflects is the contradiction between the pursuit for individual pleasure and traditional social values, especially those attached to the family. It depicts mobile phone as a menace to society, showing how the device was used to deceive and cover up extra-marital affairs and tear apart existing relationships. It reflects middle class anxieties associated with the new device, which however extends from the individual-collective tension that prevails Chinese communities before the diffusion of mobile phone.

5. **Migrants and Mobile Phones** – China has 100 to 150 million migrant population. While many cannot afford for mobile services, an increasing number of them have started to adopt, especially those with relatively better education and working in more wealthy regions. My focus group, interview, and survey in the Pearl River Delta fieldwork show that the migrant users have a strong demand, and on average they spend a higher percentage (20.2 percent) of

their monthly income on mobile services than average long-term residents (13.8 percent). And they face more problems in usage such as discrimination from operators and mobile phone theft or deception. With new low-end services such as the Little Smart, more migrants at the lower social strata are adopting mobile phones.

3.3.5. *Summary: The Asian Pacific*

In all four countries reviewed – Japan, South Korea, the Philippines, and China – the mobile culture reflects **a strong consumerism** marked by the values, tastes, and practices of **the urban middle class**. A major variant of this consumerism is **youth mobile culture**, which plays a particularly important role in Japan and South Korea. In China and the Philippines, where average income is significantly lower, **business professionals** continue to lead mobile uses, although the youth market is gaining prominence, too. An important dimension of mobile-related consumerism is also constructed in the **gendered consumption practices** that associate mobile phone with feminine colors and characters, a major feature that defines popular mobile usage in the Asian Pacific.

Compared to Europe and America, the Asian Pacific region enjoys certain advantages in some areas due to its **latecomer** status. Millions of Chinese and Filipino users got their wireless phone before ever owning a landline. Average Japanese also started using mobile Internet with no PC access at home. Such **leapfrogging** was possible not only because these countries were latecomers in certain aspects but also because their IT industries, often with **strong state support**, are able to concentrate on building key infrastructures using the latest technologies. Sometimes leapfrogging doesn't have to reach the most advanced stage. It can produce certain medium-level mobile services that are adapted to best suit the **market needs in developing countries**, as shown in the case of China's Little Smart.

Given the rapid diffusion of mobile phones, new practices are emerging to **challenge existing social norms** in public spaces and **traditional power structures** in families, schools, friendship networks, and workplaces. While some worry that excessive mobile usage would increase **social isolation**, others point out **new etiquettes and network formations** are emerging to increase people's attachment to each other. Oftentimes mobile phone-facilitated networks may **reinforce existing social order**. They may even "immobilize" users in traditional relationships in certain occasions.

SECTION 4

THE MOBILE YOUTH CULTURE IN CROSS-CULTURAL PERSPECTIVE

By youth culture we understand the specific system of values and beliefs that inform behavior in a given age group so that it shows distinctive features vis-à-vis other age groups in society. This culture has to be placed in the context of a given social structure. In other words, we do not refer here to the transhistorical analysis of the meaning of youth, but to the cultural specificity of youth in the social structure that characterizes our time, the network society. As for the definition of what is this network society, and the justification of our statement concerning its structuring role in our time, we refer the reader to the proper sources, to concentrate here on the issues that are the object of our current research.⁴⁹¹

A fundamental hypothesis in our analysis is that **there is a youth culture that finds in mobile communication an adequate form of expression and reinforcement**. Technologies, all technologies, diffuse only to the extent that they resonate with pre-existing social structures and cultural values. However, once a given culture uses a powerful technology that fits into its pattern, it grows and embraces an always greater proportion of its group of reference, in this case the youth. Our analysis will try to specify this proposition. Namely, we will try to identify the content of this youth culture in Europe, the United States, and the Asian Pacific, and see how it fits into the pattern of mobile communication, how it transforms mobile communication, and how it is strengthened and influenced by this communication technology. While restraining ourselves to the three specific regions, we believe that some basic cultural trends are applicable to other contexts, albeit with the necessary specification of each culture and institutional setting.

Much existing research on youth mobile culture(s) is concentrated in Europe, where wireless technologies have diffused widely among the younger generations, especially in North and West Europe, attracting scholarly attention from Scandinavian countries to Spain, from the UK to Russia. We shall therefore start with the case of Europe that includes a more general discussion on youth culture in the network society. This will be followed by observations made in the US and the Asian Pacific, which include more findings from journalistic and trade sources. This is not to downplay the significance of a few academic studies conducted in countries like Japan and South Korea. But comparatively speaking, there is indeed a need for more research to be carried out in the US and the Asian Pacific in order for us to better understand the specificities of these regions and countries on

⁴⁹¹ Castells (2000; 2004); Beck (1992); Himanen (2001); Capra (2002).

top of such discernible similarities as the tendency towards autonomy, the strengthening and transformation of family ties, and consumerism as a major dimension of the mobile youth culture.

4.1. YOUTH IN EUROPE

The diffusion of mobile communication in the 1990's has been nothing short of extraordinary. The embrace of the technology by the younger generations is a key factor in the speed of diffusion as the density of mobile communication users reaches its highest point in Northern and Western European countries. Thus, the understanding of the use of mobile communication by the European youth contributes to the understanding of the social and cultural meaning of this form of communication. To be sure, the comparative analysis with youth cultures in other contexts will provide greater analytical depth to our study. What follows concentrates on the observation of European countries, although the concepts and hypotheses are intended to be of greater theoretical value.

As discussed earlier, the diffusion of mobile phones in Europe in the last decade have move from, approximately, 1 subscriber per 100 inhabitants in 1992-1993, to the penetration of 55.4 percent in 2003 if we consider the continent as a whole. If we focus on the EU-25, and given similar levels of penetration ten years ago, in 2003, out of every ten persons eight were mobile telephone subscribers (rate: 80.01%). Among these subscribers, young Europeans in the 15 to 25 age bracket and young adults from 25 to 34 years of age have the highest rate of usage (77.2% and 75.8%). The penetration rate drops to 70 percent for those between 35 and 44 and then considerably reduces to lower than 55 percent for older people.⁴⁹² Young people in their teens, twenties, and early thirties not only constitute the largest proportion of users. They are also the early adopters, who invented uses that had not been foreseen by the initial designers of the technology.⁴⁹³ Indeed, in this field of communication the key to success for companies is to identify and follow the innovations of young users.

It is clear that the notion of “young users” brings together very distinct conditions. We may, at the very least, differentiate between the young adults (in their twenties and early thirties), the teenagers,

⁴⁹² Quoted in Fortunati; Manganelli (2002, p. 64), according to Euroescom (2001).

⁴⁹³ “Text messaging was an accident. No one expected it. When the first text message was sent, in 1993 by Nokia engineering student Riku Pihkonen, the telecommunication companies thought it was not important. SMS –Short Message Service– was not considered a major part of GSM. Like many technologies, the *power* of text –indeed the *power* of the phone– was discovered by users. In the case of text messaging, the users were the young or poor the West and East.” (Agar, 2003; p. 169).

and the children. However, it is our argument that there is a common culture of communication, with various emphases in their manifestations depending on age. We will clarify this analysis after presenting some of the findings of research, while specifying the analysis for each age group.

The fast rate of diffusion of mobile communication among the young population may be explained by a combination of factors such as the openness of youth to new technology, their ability to appropriate and use it for their own purposes. Indeed, this greater capacity at using new technologies becomes a factor of superiority compared to their elders. And it has become a sign of self-recognition among the peer group. It is thus worth pointing out that the mobile telephone case has a special particularity related to ergonomics and age. Due to the physical features of mobile handset, elderly people could have added problems to manage the device (dimensions of the screen and, specially, buttons; etc.). Those difficulties overpass the generational gap common to NICT gadgets⁴⁹⁴.

Also important is Europe's pricing system, which has made mobile communication affordable even for those with low budgets. This pricing system, together with the availability of a common telephony network within each country and around the continent,⁴⁹⁵ greatly facilitates the popularization of the technology. Three characteristics of the European pricing system need to be highlighted. First of all, the call is always paid by the person who initiates communication. Only when roaming, a recipient will pay a part of the cost of the incoming call. Roaming – or the ability of use your cell phone in different systems⁴⁹⁶ – in Europe only applies when out of the national borders but never within a country.

Secondly, pre-paid system allowed lower-purchasing-power individuals and families to reach a mobile telephone. This billing system has low fixed costs, despite variable ones are usually higher compared to monthly contract. This billing system, when first introduced, could have been perceived as an over-consumption encouraging system since the commitment of consumption (i.e., the payment) is previous to the actual consumption act (i.e., the call). Contrary to that idea, the system allowed a control on the expenditure because the monetary commitment also acts as a limit for the final consumption. Nevertheless, prepaid packages do lead to higher levels of telephony expenses,

⁴⁹⁴ Lobet-Maris and Henin. (2002, p. 102); Moore, K.(2003, p. 68).

⁴⁹⁵ As Agar (2003) explains, the European mobile telephone system early defined a transnational standard, thanks to the leadership of the Nordic countries. In contrast, the USA wireless communication was, by 1992, a “crazy-paving of licenses covering the country” (p. 40).that did no allow an easy connection between users of different operators.

⁴⁹⁶ Agar (2003, p. 40).

because more teenagers will receive a handset, and thus will use it in their everyday life, thanks to the fact that a strict parental control over the budget can be applied.

Third, SMS is compatible among different mobile telephone companies. There is no need, for the user, to know anything about the companies involved in the communication. Thus, all users, regardless of the company, can communicate through SMS at the same cost and with the same technical facilities. SMS was built into the European Global System for Mobile (GSM) standard as an insignificant, additional capability.⁴⁹⁷ Its low cost⁴⁹⁸ contributed to its generalized adoption among teenagers, overcoming the interface inconveniences. Despite its great success, SMS is the only telecommunication service that has maintained its price⁴⁹⁹ or, even, has raised it. Indeed, nowadays it is almost impossible to send a free SMS through the Web as an end user.

4.1.1. Youth Culture in the Network Society

In the context of structural networking, cultural individualization, and autonomy building around self-generated projects that characterize the network society, European mobile youth culture emerges around the management of several processes along a number of social dimensions.

The management of autonomy vis-à-vis security. This is particularly important in the new family relationships. The crisis of the patriarchal family leads to the weakening of traditional forms of parental authority and to the early psychological and social emancipation of the youth. At the same time, the family continues to be an essential source of security and support for the youth, both in functional terms (safety, income) and in psychological terms (guidance, emotional support). On the other hand, the crisis of the patriarchal family leads to increasing tensions between the parents, with increasing rates of dissolution, and high levels of emotional instability. Children become the primary source of emotional reward. But this comes at the price of relinquishing authority in exchange for companionship. On the other hand, an aging and unequal labor market in Europe places the youth in clear disadvantage vis-à-vis the older population, in spite of youth's higher education levels and much greater acquaintance with the new technological environment.

⁴⁹⁷ Goggin (2004).

⁴⁹⁸ In 2003 (December), the European average cost of sending an SMS was 0.12 Euro (+taxes). Source: Crédit Suisse / First Boston, quoted in Grenville (2004).

⁴⁹⁹ Lacoche, Wakeford and Pearson (2003, p. 206).

The net result of all these trends is that the older population needs the emotional support of the youth while keeping them economically dependent, and not being able to exercise their authority because of the crisis of patriarchy and the early process of individualization. For the younger population, they feel their autonomy as individuals very early, but they need security from their family until very late in their evolution. Thus, to manage the relationship between autonomy and security in their family relationships is an essential condition of their existence. Although this is particularly important in the teenage years, it is also present among the children that often come back from school to an empty home of overworked elders, and it is also present among young adults that need their parents to solve their problems in life while fully deciding their everyday life.

The construction of a peer group through networked sociability. There is a transformation of sociability in the network society, as it has been shown in the studies on the social uses of the Internet.⁵⁰⁰ The culture of individualism does not lead to isolation, but it changes the patterns of sociability in terms of increasingly selective, and self-directed contacts. Thus, the new trend is the emergence of networked sociability. The medium of this sociability may vary. It includes, naturally, the Internet and mobile phones, but it can also be face to face. The critical matter is not the technology, but the development of networks of sociability based on choice and affinity, breaking the organizational and spatial boundaries of relationship. The social outcome of these networks is a double one. On the one hand, from the point of view of each individual, his/her social world is formed around his/her networks, and evolves with the composition of the network. On the other hand, from the point of view of the network, its configuration operates as the point of reference of each one of the participants in the network. When a network is common to a number of its members, it becomes a peer group. In other words, networked sociability leads both to an individual-centered network, specific to the individual, and to peer group formation, when the network becomes the context of behavior for its participants.

The consolidation of the peer groups around shared values and codes of meaning for the members of the group leads to **the emergence of collective identity**. Youth culture(s) are signaled by the presence of these codes. For instance, a shared language, like in the practice of texting in wireless communication, as well as in the adoption of new forms of expression of the written language. It is an open question, probably varying in each society, if there is a shared youth culture, or a series of specific sub-cultures. Probably, there is a common, global youth culture, built around some

⁵⁰⁰ Wellman and Haithorwaite (2002); Castells et al (2003); Katz and Rice (2002).

distinctive attributes diffused by global media, and then a number of specific national cultures and subcultures. The key question, though, is that each one of these cultures will need a set of specific codes of self-recognition, including its own language, as well as protocols of communication with other subsets of the youth culture. Communication is crucial in the formation and maintenance of youth's collective identity.

There is also an observed trend to personalize behavior within the youth culture. In other words, in parallel to the affirmation of a collective identity, there is also the **strengthening of individual identity** as a distinctive attribute of this collective youth identity. What is distinctive to contemporary youth culture is the affirmation of each individual that shares the culture: it is a community of individuals. Thus, there will be signs of individualism in each process of communication. Each person in communication will personalize his/her message and sender/receiver position.

Consumption is an essential value in our society. Thus seeking status through symbols, and stratification of individuals vis-à-vis the hierarchy of valued symbols it is an important dimension of youth's consumerism. **The youth culture is not only a consumption culture, but consumerism (that is the high value attributed to consumption) is an important dimension of the culture.** However, the patterns of consumption, the valuation what ought to be consumed, change. These changes, which derive from a combination of symbolic innovation, crowd psychology, imitation, and status seeking, are **modeled in patterns of signs that constitute a fashion.** While commercial value of fashion is essential for its diffusion, fashion is not generated by commercial enterprises. Rather, the market is shaped by those companies that find early signs of a fashion and diffuse them under their label. So fashion is related to collective identity but it is not the same: both identity and fashion are embodied in codes that are defined collectively. But identity comes first, and expresses itself in fashion. Fashions change, collective identity is more stable. Related to above, but not the same: the construction of collective identity. To some extent, collective identity in the youth culture is a break with the dominant culture. Fashion is the personalization of this rupture to become individualized identity. The sum of these individual identities that express differently the collective identity produces the fashion. An example. Piercing is a break with the dominant aesthetics, and also an affirmation of the value of the self-inflicted pain (it actually started in the sado-masochist movement in the early 1980s). So, it is part of collective identity. But there is a personalization of piercing, using different parts of the body, different devices, different colors and shapes. The variety of piercing

forms evolves into a fashion of piercing. We will see below that the personalization of mobile phones can be linked to a similar phenomenon.

The culture of the network society is fundamentally characterized by the importance of projects of autonomy as principle of orientation for people. This has individual and collective manifestations, including politics, for instance in the mobilization characteristic of the anti-globalization movement. Social actors aim at building their autonomy, in all dimensions of their life, thus defining their culture in their practice, and starting not from whom they are but from what they want to be. This search for autonomy is particularly strong among the young segments of the population, because they are the ones looking to influence and change society rather than adapting to it. So, here is the practice tends to be instrumental, but we need to understand instrumentality in a broad range of meanings. It can be professional, it can be communicative, it can be geared towards the control of the own body, it can be political as well, but what matters is that it is the actor who decides the purpose of the instrumentality.

Our hypothesis is that wireless communication provides an exceptional technology of communication to support the dimensions that characterized youth culture in the network society, as presented above. Let us examine the extent to which this hypothesis is supported by the evidence.

4.1.2. Cultural Dimensions of the Mobile Youth Society

Our purpose, in this section, is to show how mobile communication support and favor the different elements that define the youth culture. To this respect, we are going to gather evidences shown in the surveyed literature. As it will be seen, these empirical evidences can be both qualitative and qualitative and will be structured following the same four-point structure stated above.

4.1.2a. The management of autonomy vis-à-vis security

Related to this section, we can find empirical evidence referred to different European countries that, at the same time, reinforce our theoretical discourse. In some way, those different analyses are complementary, as we see in the following.

First, studies show that small children use the mobile telephone within boundaries of the family. For those who are up to ten years old, there are regulations and rules to be followed, which means parental permission is required for making a call while the children commonly read SMS messages.⁵⁰¹ Then, among pre-teens (10-12 years old) and teenage users, privacy and autonomy is respected by parents.⁵⁰² These findings fit in with the fact that teenagers primarily use the mobile phone to organize their everyday lives and to maintain social relationships⁵⁰³, and they do that autonomously and beyond parental control.⁵⁰⁴ The mobile phone is, in a paradoxical way, the keeper *and* the breaker of family ties.⁵⁰⁵ In this sense, there is a kind of “mime” or sham within the family, as can be seen in this quotation:

In reality, the mobile in children’s hands may solve problems of organization and logistics, calm down parents’ anxieties, such as knowing where their children are, but, however, it cannot solve the problem of quality and the flow of communication between parents and children.

The development of a sense of responsibility also passes in a limited fashion through the use of this instrument, inasmuch as most of the time, adolescents “mime” with the mobile in a public area and simulate autonomy and responsibility without actually enjoying them. Having often received the mobile as a gift from parents and being financially supported by them for their own use, adolescents are obliged to show continuous gratitude and acknowledgement towards too generous, permissive parents. (...)

In the same way, their parents “mime” with a respect towards freedom as for the children which, in fact, they are very far from expressing, since they actually often would seem to feel the obligation of closely monitoring them.⁵⁰⁶

Meanwhile, the mobile telephone is often a present for young users.⁵⁰⁷ The two main reasons stated by parents to justify the purchase are safety⁵⁰⁸ and what we can call the “technological dowry” that

⁵⁰¹ Oskman and Rautiainen (2002, p. 29). Finland.

⁵⁰² Ibid, p. 30.

⁵⁰³ Ibid, p. 27.

⁵⁰⁴ Fortunati and Manganelli (2002, p. 60). Italy. The same idea can also be found in Lobet-Maris and Henin (2002, p. 111). Belgium and Ling (2002); Norway.

⁵⁰⁵ Lorente, (2002, p. 6-8)

⁵⁰⁶ Fortunati and Manganelli (2002, p. 62). Italy.

parents consider important to give to their children in order to overpass a possible technological divide.⁵⁰⁹ However, once the handset becomes an everyday-life device, the daily use varies with respect to the initial expectations following a dynamic domestication process.⁵¹⁰

Mobile communication with parents is not of very quantitative relevance and what is more appreciated is the possibility of constant communication.⁵¹¹ This communication is strengthened when the child is home alone after school. Calls made by children to parents typically deal with everyday matters: ‘Can I have some ice cream, mom? Can I go out to play?’⁵¹² On the other side, communications from parents to children usually are instructions, advices and schedules.⁵¹³

Affective and sociability usage emerges among children thanks to the permanent contact with peers allowed by mobile telephony.⁵¹⁴ In a different context, where loneliness is not the point, this communication from home-to-home can be also clearly seen in the UK, where a “bedroom culture” developed as a response to parents’ desire of keeping children in safe places where they can be monitored.⁵¹⁵

Finally, as in the case of the Internet or computers in general, another trend has been observed that “young users” teach parents how to use mobile telephones.⁵¹⁶ With ICTs, the whole culture of learning is undergoing change,⁵¹⁷ leading to the transformation of the patriarchal model. Thus, although education process still remains vertical, roles have been inverted and the flow of knowledge changed direction to rise from the younger generation up to the elders.⁵¹⁸

⁵⁰⁷ As seen in Italy (Fortunati; Manganelli (2002, p. 61), Russia (Vershinskaya (2002, p. 145), Germany (Höflich; Rössler, 2002, p. 90), or Norway (Ling, 2001; p. 8).

⁵⁰⁸ Oskman, Rautiainen (2002, p. 29), Finland. Haddon (2002, p. 118), UK.

⁵⁰⁹ Fortunati, Manganelli (2002, p. 61), Italy. Oskman, Rautiainen (2002, p. 29), Finland.

⁵¹⁰ Frissen (2000, p. 72), the Netherlands. Fox (2001?), UK.

⁵¹¹ Oskman, Rautiainen (2002, p. 28). Finland.

⁵¹² Ibid, p. 29.

⁵¹³ Ibid, p. 28.

⁵¹⁴ Fortunati, Manganelli, (2002, p. 72). Italy

⁵¹⁵ Haddon, (2002, p. 118).

⁵¹⁶ Fortunati, Manganelli, 2002, Italy; and Vershinskaya, 2002, Russia.

⁵¹⁷ Vershinskaya, 2002, p. 146. Russia.

⁵¹⁸ Fortunati, Manganelli, 2002, p. 71-72. Italy

4.1.2b. The construction of a peer group through networked sociability

Mobile telephony is a fitting tool, a highly important one, in relation with the creation and keeping of peer groups.⁵¹⁹ For teenagers, the mobile phone appears as an everyday object that may even possess certain human characteristics: it is, after all, the gadget that enables the owners' social network to be continuously present on-line.⁵²⁰ Mobile telephony sets up as one of the channels through which peer groups of young users are maintained. It features the creation of new spheres of intimacy, new ways and moments of communication that are in the core of the mobile youth culture. In fact, having the opportunity of being connected in multiple ways appears to have had a significant impact on changing the way youth communicates.⁵²¹

This "perpetual contact"⁵²² has been favored by the fact that handsets are personal, individual devices always carried by the owner and tied up inextricably to the everyday life of youth,⁵²³ allowing new flexible and creative ways of use, as young people have already found out, that help the breaking of organizational and spatial boundaries of relationship.

The fixed telephone is a community communication tool in the family structure.⁵²⁴ In contrast, mobile telephones are characterized by their personal, i.e., private, and, in certain cases, intimate use.⁵²⁵ Thus, the handset itself can be understood as a communicational node, always attached to a person, of the social network. Under this scope, we can distinguish two different ways in which the mobile telephone is used to construct, maintain and reinforce relationships among young users, as shown below.

(1) Creating, reinforcing and maintaining links through the mobile telephone:

Despite other features the device could have, the mobile telephone is above all perceived as a communication tool.⁵²⁶ In this sense, and following the taxonomy posed by Ling (2000), two roles

⁵¹⁹ Lorente, (2002, p. 6-8)

⁵²⁰ Oskman, Rautiainen (2002, p. 25). Finland

⁵²¹ Smith et al. (2003, p. 4).

⁵²² Katz, Aakhus (2002, p. 2)

⁵²³ Katz; Aakhus (2002); Anderson; Heinonen (2002, p. 7); Cohen; Wakeford (2003); Lorente (2002, p. 6 - 8); Lobet-Maris; Henin (2002, p. 111)

⁵²⁴ Lobet-Maris; Henin (2002, p. 111). Belgium

⁵²⁵ Ibid.

⁵²⁶ Moore, K.(2003, p. 65)

that mobile telephony has for many adolescents must be highlighted here. The first one is Accessibility (or Availability), and the second one is Micro-coordination.⁵²⁷

Accessibility is reached as long as the mobile telephone allows the remarkable combination of social availability with intimacy. Nowadays, teens can decide when, and where, they are reachable. Micro-coordination, on the other hand, is described as the *nuanced management of social interaction*⁵²⁸.

Thus, the use of mobile telephony to glean information on where and when to meet friends describes a lifestyle wherein “mobility and flexible scheduling and, perhaps, the desire for greater privacy in telephone communications are central”⁵²⁹.

Teenagers send and receive a high amount of SMS.⁵³⁰ They would have text message conversation over a number of hours, maintaining contact with friends when they are away⁵³¹ and writing what they consider significant messages.⁵³² But they can also expend hours texting locally, that is, with other teens that are in the same room as illustrates the next quotation from a 14-years-old Finnish girl:

When they had the campaign that allowed you to send SMS for two cents a piece, we pretty much sat there all day with the mobile and probably sent a few hundred messages in all. We could be seated on a bed next to each other typing messages to one another. For three or four hours we just sat on the bed sending messages to one another.⁵³³

Communication can be instrumental and expressive. This is valid for SMS as long as you can coordinate a meeting and/or say goodnight to your boyfriend/girlfriend after turning the bedroom light off.⁵³⁴ In the UK, a study observed that texting is mainly expressive.⁵³⁵ In Norway, there is also a remarkable move from instrumental to expressive use of the mobile telephone among teenagers.⁵³⁶ These all exemplify what we understand as the fundamental features of expressive texting: it can be local; it is going to be used as long it is affordable; and it is perceived as an entertainment.

⁵²⁷ Ling (2000), Norway.

⁵²⁸ Ling, R. (2004, p. 70).

⁵²⁹ Gillard et al., (1996) –quoted in Ling (2000) –.

⁵³⁰ Kasesniemi (2003, p. 82). Finland.

⁵³¹ Smith et al. (2003, p. 4); UK (teenagers 16-18 years-old).

⁵³² Kasesniemi; Rautiainen (2002, p. 1984).

⁵³³ Kasesniemi (2003, p. 21). Finland.

⁵³⁴ Fortunati, Manganelli, 2002, p. 75. Italy

⁵³⁵ Continental Research (2001). We grouped the original categories in two: Expressive (Romance and Filtering, Jokes and General chat) that accounts for the 59% of the 794 SMS studied; and Instrumental (Social arrangements, Work/Study, Travel/Journey, Sport, Other), that accounts for the 41% remaining.

⁵³⁶ Ling; Yttri (2002, p. 166).

Not everything is texting. Indeed, we can see a different behavior among young users of older age. Young adults give up intensive use of SMS⁵³⁷ and adopt voice calls as an important part of their communication, which would be mainly held during afternoons or evenings.⁵³⁸

Mobile telephones can be considered the “new garden fences”⁵³⁹ because they allow the recreation of “the brief, frequent, spontaneous *connections* with members of our social network that characterized the small communities of pre-industrial times”⁵⁴⁰. Texting and boom calls, among other practices, are good examples of those connections.

(2) Creating, reinforcing and maintaining links with the mobile phone

Peer groups are formed in the physic, everyday world. Relations are partially held through the mobile telephone, as we have already seen. Young people also use the device locally and sharing it mainly within the peer group and, sometimes, use it to establish new contacts.⁵⁴¹ In this sense, Weilenmann and Larsson, observed a collaborative use of mobile telephones within peers groups.⁵⁴² Taking into account if the device is physically lent or not, the authors describe two main types of strategies of mobile: minimal sharing and hands-on sharing.

The minimal sharing category refers to a strict sharing of content; that is, information. In this case, the device remains on the owner’s hands and the collaborative use of the mobile phone can have different forms. An SMS can be read aloud, or be written together. A conversation through the mobile phone can also be shared with present peers.

Speaking on a mobile phone in public spaces has created a conflicting situation in which the communicator is simultaneously both there and elsewhere.⁵⁴³ The behavior described above works in the opposite sense by linking peers present around the mobile telephone speaker with the other side of the line, by the means of transmitting the conversation or by using the free hands feature of the

⁵³⁷ Smith et al (2003, p. 4), UK; Ling (2002), Norway. Valor; Sieber (2003?); Spain (Internet users).

⁵³⁸ Valor; Sieber (2003?); Spain (Internet users).

⁵³⁹ Fox, K (2001?)

⁵⁴⁰ Fox, K (2001?)

⁵⁴¹ Weilenmann, Larsson (2002). Sweden.

⁵⁴² Ibid.

⁵⁴³ Kasesniemi (2003); p. 26. Finland

device. Moreover, in oral conversations non-verbal communication could also be relevant as a way of communication among the teens that are physically together during the telephone interaction.

On the other side, the hands-on sharing category includes situations in which a person borrows the mobile telephone from another; a behavior that would only happen if there is enough confidence between the lender and the borrower. We may add, although it is not yet verified, that the group would punish free rider behaviors.

All these ways of group behavior increase collective identification, the bounding feeling, thanks to the creation of a higher sense of intimacy between peers. In this sense, and because of its importance, the next section is devoted to that regard.

4.1.2c. The emergence of collective identity

The way youth adopt and appropriate the mobile telephony technology contributes to the construction of their own culture by the means of differentiation from adults and, particularly, from parents. Texting is probably the most evident way in which collective identity of mobile youth is created and maintained. In the following we are going to deal with SMS as well as the different ways in which texting and other mobile telephone features are used.

Thanks to SMS, youth have created its own, private, exclusive language to communicate through short text messages of 160 characters. Despite so many examples about the use of SMS language⁵⁴⁴ and so many books and webs available on this topic, each youth group has its own language that generates differences to distinguish from not only adults but also other youth groups.

Texting is a creative way of mobile telephone usage in a context where the technology was available but young people have very limited budgets to utilize this communication tool. Indeed, SMS was dismissed by telecommunication industry for private users because it is hard to use: much time is needed to write a message that cannot contain much information.⁵⁴⁵ Costs of texting were seen as high when compared with the possibility of an oral communication.⁵⁴⁶ And, of course, business users

⁵⁴⁴ See Annex 2.

⁵⁴⁵ Lobet-Maris; Henin (2002, p. 103)

⁵⁴⁶ Agar (2003).

take less account of the monetary cost than teenagers, who on the other hand have plenty of time to be “wasted” on this kind of activities:

Boys describe how they will spend 15 to 30 minutes composing a single message if they consider it significant⁵⁴⁷.

As in many other cases, technological innovation was followed by innovation in use and, then, by a cultural innovation. In this case, a cheap and cost-controlled way of communication grew up allowing a way of collective identity reinforcement that is similar to the “brief, frequent, spontaneous” social networks of pre-industrial communities.⁵⁴⁸ Writing, sending and receiving SMS is a social activity. While texting could have an instrumental purpose, it has also been developed as a means for expressive communication. This communication, of course, is done in a different way, and have different connotations, from face-to-face or voice interactions.⁵⁴⁹ Through an SMS you can coordinate a meeting but, also, can say “good night” to your boyfriend/girlfriend. In this sense, it is worth to highlight the results of a research done in the UK that studies 794 SMS in 2001.⁵⁵⁰ It showed that more than half of them (59%) belonged to the expressive category, while only 41% were instrumental.

SMS could be seen as a way of killing time. A teenager can expend hours sending and receiving messages during a boring evening or during a trip.⁵⁵¹ In some situations, texting is better than calling not only because of the connotations of the communication channels, but because more time is spent in the activity itself. If you are using SMS in its expressive function, why killing the moment with a call? A call, indeed, is more specific, and once it ended there is perhaps no justification for sending a new SMS. Meanwhile, there is also evidence showing that SMS is usually used in the local surrounding of young people and mostly at home.⁵⁵² This service is going to be used as long as it maintains its low cost, and is perceived as an entertainment.

⁵⁴⁷ Kasesniemi, E.-L., Rautiainen, P. (2002); p. 184.

⁵⁴⁸ Fox, K (2001?)

⁵⁴⁹ See section 5 “Language Transformation”.

⁵⁵⁰ Continental Research (2001): Mobile Phone. July 2001 (www.continentalresearch.com). We grouped the original categories in two: expressive (Romance and Filtering, Jokes and General chat), and instrumental (Social arrangements, Work/Study, Travel/Journey, Sport, Other).

⁵⁵¹ Haddon (2002), referred to the UK; Oskman, Rautiainen (2002), referred to Finland.

⁵⁵² Grinter; Eldridge (2001); referred to the UK.

Apart from the activity of texting itself, there are some other practices that also reinforce, maintain and create collective identity among teenagers. Some of these practices are related to texting, but others do not. We are talking, for instance about boom calls, teasing SMS, chained messages, collective writing or reading SMS, SMS collection, or even games. Some of these practices are analyzed below.

A boom call is a telephone mobile call not to be answered and, thus, entailing no cost for the caller. As long as handsets can identify the incoming number, a ring on the device becomes significant for the receiver. They can be used with an expressive intention (meaning, “I am thinking on you”) or for coordination purposes (for instance, meaning “Hello, I’ve just arrived. Are you coming?”). A previous accordance of contents should have been done, as when defining all kind of private languages. Boom calls or even empty SMS,⁵⁵³ can be used in a teasing way and, also, some “boom call games” have been developed within teenagers groups.⁵⁵⁴

Another way of keep in contact with peers is teasing SMS and chained messages. They can be of different ways, and can have both text and simple images created with the characters allowed by the handset. In Nordic countries, besides ordinary jokes, there also used to be SMS that made pejorative remarks about users of others mobile companies in a humorous way.⁵⁵⁵ Sometimes, because there is no so much memory in mobile devices, messages are kept and shared among peers.⁵⁵⁶

They are various kinds of SMS that a teenager can collect. One category is jokes. Then, there are also private messages that most of times are kept to recreate texting conversations with, for instance, your boyfriend or girlfriend.⁵⁵⁷ This helps to reinforce the relationship, or revive it when there is a crisis.

Finally, collective writing and, or, reading of SMS have been analyzed in the previous section, when talking about the collaborative use of the mobile telephone.

⁵⁵³ Oskman, Rautiainen (2002)

⁵⁵⁴ Kasesniemi (2003)

⁵⁵⁵ Puro, J (2002)

⁵⁵⁶ Puro, J (2002); Kasesniemi; Rautiainen (2002), Weilenmann; Larsson (2002)

⁵⁵⁷ Kasesniemi (2003)

4.1.2d. Strengthening of individual identity and the formation of fashion

Nowadays, the mobile telephone has become a symbol of youth identity in many countries⁵⁵⁸. For children and teenagers, and also for young adults although with less intensity, ownership of the “correct” type of mobile telephone is a subject of relevance.⁵⁵⁹ Nevertheless, having the appropriate device is not enough, because it should be personalized;⁵⁶⁰ because, at last, it is an expression of personal style and way of life.⁵⁶¹ Indeed, as stated by Fortunati:

With respect to other mobile technologies, it is the one item that specifically presents us with the problem of wearability and, thus, of its relation with clothing.⁵⁶²

A mobile telephone, then, could be compared and treated as a piece of cloth linked to temporary collections, because it is a product of limited life that is always attached to the body. Under this strict point of view, we can agree with some authors to identify the mobile device with a watch.⁵⁶³ And, most important, mobile technologies become closely involved in the processes of self-conscious display, self-assessment and self-improvement.⁵⁶⁴

Personalization of handset, at first, was done by painting them with different kinds of paints and colors or, perhaps, making diverse pouches in which the device could be carried and kept.⁵⁶⁵ This, in some way, led to a market evolution and handsets started to be available in a way that allowed the end user to change some aesthetic elements, which, at the end, created a new fashion. This is one of the multiple examples that can be stated with regard to the mutual influence between the creation of individual identity and the formation of fashion.

Following Skog (2002), it can be stated that teen users are not only consumers but producers as well since they are free to create an individual phone by combining downloadable ring tones, logos,

⁵⁵⁸ Ling (2004, p.103)

⁵⁵⁹ Ling (2001, 2004); Fortunati (2002)

⁵⁶⁰ Ling (2004); Kasesniemi (2003), Oskman and Rutiainen (2002)

⁵⁶¹ Oskman and Rutiainen (2002)

⁵⁶² Fortunati (2002, p. 56).

⁵⁶³ Ling (2001); Fortunati and Manganelli (2002); Kasesnieimi (2003); Oskman and Rutiainen (2002)

⁵⁶⁴ Cohen and Wakeford (2003)

⁵⁶⁵ Skog (2002), Oskman and Rutiainen (2002)

pictures, and games; as well as different external elements. The flexibility and social contact allowed by the technology means that it has become harnessed as part of many teenagers' identity project.⁵⁶⁶

There is another way of personalization that the industry has made good use of: i.e., ring tones and other multimedia contents, which can be downloaded to the mobile telephone. This is a good example of how a market niche could be exploited to generation good revenue. On the other hand, changes in fashion can also create problems to well-established companies, as in the case of Nokia, which recently changed radically her strategy related to handset design. Indeed, Nokia introduced clamshell telephones in her catalogue because of the correspondent change in the taste of final consumers.⁵⁶⁷

4.1.2e. Projects of autonomy as principle of orientation for people

In this last facet to be studied on the subject of young mobile culture, some aspects must be commented but, first, it should be better to distinguish among two different kinds of projects of autonomy: the individual project and the collective project. With regards to the individual project of autonomy, mobile devices tend to help the development of the project itself although, as in the case of computers, some new ways of surveillance may also emerge as the technology develops.⁵⁶⁸ Indeed, an increase of private surveillance was predicted thanks to the popularization of the mobile telephony, although such perceptions are not homogeneous.⁵⁶⁹

We have discussed in the above the individual project of autonomy as related to the emancipation of youth from parental control. With regard to other particular points, Skog found that young users belonging to worker families saw the mobile telephony as one of the instruments that could help on the development of their autonomy.⁵⁷⁰ Moreover, it is common for some young people to the mobile handset as their only telephone, usually during those more nomadic periods when a transition toward an adult way of life is taking place.⁵⁷¹

With regard to what can be called the collective project of autonomy, the Free Wi-Fi collectives must be mentioned. Spreading across Europe, this project claims a cooperative use of Wi-Fi connections

⁵⁶⁶ Fieldwork: 1999 -2000. Norway. Students of ninth grade (compulsory school).

⁵⁶⁷ Reinhardt, Bonnet and Crockett (2004)

⁵⁶⁸ Rule (2002)

⁵⁶⁹ Vershinskaya (2002), Rule (2002), O'Hara and Sellen (2002)

⁵⁷⁰ 2002.

⁵⁷¹ Ling (2004)

with the argument that, as it happened with the Internet, only a non-cost cooperative behavior could better benefit the society. Indeed, we are talking about civil associations whose objective is to create areas of free wireless access to the Internet. And finally, also related to the collective project of autonomy but with great importance at present, we must talk about the use of the mobile telephony for political mobilizations, which will be the subject of Section V.

4.2. YOUTH IN THE UNITED STATES

New communication technologies tend to have a fundamental association with the youth demographic in most societies including the United States as young people are generally more receptive to new technology and to creatively incorporating it into their lives.⁵⁷² This tendency gives rise to moral panics related to fears about the disappearance of childhood as new technologies continually give children access to information and participation options that either blur the boundaries between childhood and adulthood, or weaken children's ties with family and other social institutions.⁵⁷³ Yet new communication technologies are also associated with optimistic views about their potential to enhance the lives of children and through them society at large, especially in the areas of education and civic participation.⁵⁷⁴

While a significant body of research on youth uses of wireless technology is developing in some European and Asian countries, there has been little systematic and academic study of how youth in the U.S. are using the emerging technology. This is probably because **young people have not been a major element of the U.S. industry until recently**. After years of focusing on the corporate market, the U.S. wireless communication industry has only just started targeting the youth market for a number of reasons.⁵⁷⁵ Industry analysts have observed the extraordinary adoption of wireless technology among young people in other countries, especially in Europe and Asia and hope to replicate those results in the U.S. Since there is some evidence that general market is reaching saturation point⁵⁷⁶ the industry is looking for alternative and more segmented markets, of which the youth demographic has been identified as most promising.

⁵⁷² David and Russell (1999).

⁵⁷³ Sefton-Green (1998).

⁵⁷⁴ E.g., Wilhelm (2002).

⁵⁷⁵ Collins (2000); Credit Card Management (2003); Fischer (2002); Mack (2003); Meyer (2002); Sewell (2002); Smith (2004); Tan (2001).

⁵⁷⁶ Henry Fund Research (2003; 2004); Noguchi (2004); Wilson (August, 2003).

Wireless communication technology is only the latest in a long line of technological advance that have successively driven hopes and fears about the impact of technology on the youth. Books, radio, television and Internet developments have all been associated with perceived transformations in the relationships between young people and the rest of society, especially agents of socialization.⁵⁷⁷ Contemporary information and communication technologies (ICTs), however, are seen as particularly significant in the changes they have made possible. David and Russell for example, state that new “interactive and wearable technologies” have brought about “a tectonic shift in the contemporary formation of adolescent identity.”⁵⁷⁸ Essentially, these new technologies move young people away from the sphere of influence of traditional socialization methods such as the home, educational system and broadcast media, while providing an ever-widening range of socializing and identification options, thus contributing to the “crisis of boundaries.”⁵⁷⁹ At an even broader level, according to David and Russell, the new digital and mobile technology engenders a qualitative change in users’ experience of everyday life, as the technology becomes incorporated into routine activities. In the case of adolescents who are especially highly immersed in the digital lifestyle, the result is a “technosocial sensibility,” that is, “the state in which technology and nature are brought together.”⁵⁸⁰ The concept of technosociality emphasizes communication technologies not as tools but as contexts, environmental conditions that make possible “new ways of being, new chains of values and new sensibilities about time, space and the events of culture.”⁵⁸¹

For the last four years or so, analysts and researchers have been announcing the emergence of the youth market as the driving force of the US wireless communication industry.⁵⁸² These predictions have not exactly materialized; for example, the largest group of users so far has tended to consist of young professionals in the 30-plus year group.⁵⁸³ TNS concludes that the youth market is as yet not critical to the US wireless market as compared to Europe, Canada, Japan and Korea.⁵⁸⁴ Other research documents show that cell phone users tend to be affluent 25-54 year olds.⁵⁸⁵ In addition,

⁵⁷⁷ E.g., Arnett (1995); Buckingham, Davies, Jones, and Kelley (1999); Demars (2000); Srivastava (2004).

⁵⁷⁸ David and Russell (1999, p. 69).

⁵⁷⁹ Ibid, p. 75.

⁵⁸⁰ Ibid, p. 73.

⁵⁸¹ Ibid.

⁵⁸² E.g. Fattah (2003); IDC (2003); In-Stat/MDR (February 3, 2004; April 19, 2004); Motsay (2003); TNS (February 8, 2001); TNS (2002); The Yankee Group (2004); Wireless World Forum (2002).

⁵⁸³ Fattah (2003); Horrigan (2003); Wagner (2001).

⁵⁸⁴ TNS (2002b).

⁵⁸⁵ Anfuso (April 22, 2002).

with respect to wireless data applications, the more successful applications such as the Blackberry are primarily used by the business community.⁵⁸⁶

Nevertheless, there is some evidence to suggest that the youth market is gradually expanding, not least because of a concerted effort by the industry to target products at the youth, despite misgivings about the reliability of this demographic. The increasing number of companies turning out prepaid phone card plans is an indication of this: in 2001, prepaid subscribers constituted about 12% of wireless subscribers, up from 6% in 2000 with one company – Leap Wireless – offering only prepaid services, target mainly at the youth.⁵⁸⁷ The prepaid market is designed to cater to the credit-challenged, of which the youth are a significant part.

An accurate picture of the youth market in the US is yet to be seen since there is not much compatibility in data collected by different researchers on this group. However statistics and commentary in business journals, newspapers, and academic research provide some insights into how kids, teenagers and young adults are incorporating wireless communication technology into their everyday, increasingly mobile lives. Although there is a perception that the youth naturally gravitate towards wireless communication devices such as cell phones, there are a variety of opinions as to the real driving force. Some people believe teens' busy and increasingly mobile lifestyles are behind the trend, others believe parents are the main drivers, while others suggest it is the mobile phone industry that is creating demand for the product through clever marketing.⁵⁸⁸

While asserting that the mobile phone is “an icon of the youth generation,” the Mobile Youth 2002 report stresses that the youth culture “is complex and not easy to decode at first glance. It changes radically between genders and the different age strata ... the cultural norms determine the acceptance of new services, their associated levels of ‘cool’, how the phone is used, why it is used and, importantly what meaning the device has in the future.”⁵⁸⁹ Sefton-Green declares that “there are now different kinds of childhoods or youths.”⁵⁹⁰ There is also little data available about non-users, who may also be an important aspect of the market.

⁵⁸⁶ Fitchard (2002).

⁵⁸⁷ Luna (2002); Mader (2003); OECD (2003); Rockhold (2001); Standard and Poors (2003).

⁵⁸⁸ Dunlap (2002); Selingo (2004).

⁵⁸⁹ Wireless World Forum (2002, p.10).

⁵⁹⁰ Sefton-Green (1998, p.9).

Notwithstanding the various subcultures within the youth demographic, one can identify certain characteristics that arguably define the youth in general, and are evident in their use of wireless communication technology. Among these are the desire for independence, community and connectivity, entertainment, personal identity and coolness. These values can be seen in the personal, social and political uses of wireless technology, especially cell phones, by young people in the US.

Table 17: Uses of cell phones, 2003 (based on US kids 6-14 years)

Activity	Percent
Call friends	60%
Call family	59%
Download games	41%
Download ringtones	38%
Use Internet	38%
Text friends	36%
Take pictures	34%
Text parents	30%
Text/call TV shows/contests	30%
Download pictures	30%
Have cell phone	29%

Source: TNS (2004). *American kids shout, "I want to be a millionaire!" and stress importance of having lots of money.* Retrieved June 4, 2004 from <http://www.tns-global.com>

According to other research, young people use the cell phone mainly to play games, send text and email messages, download ringtones and send pictures, in that order.⁵⁹¹ In addition, the most popular reason for owning a cell phone was for convenience. The most popular location of usage was at the store or in public transport. Other areas were at mealtime, in the bathroom, on a date, at a concert, at a library, at work, in a hospital, in meetings/class and at places of worship.

4.2.1. Independence

Traditionally considered in most cultures as both vulnerable to societal ills and highly risk-prone, young people (especially teenagers) tend to live under close surveillance from parents and guardians. Yet this is also the time when young people's sense of and desire for independence and privacy is growing. Wireless technology provides a means for parents and children to resolve this tension in ways that were not possible before.

⁵⁹¹ Selian (2004).

According to some sources, the growing ownership of cell phones by the youth is driven largely by parents for monitoring and safety purposes. Surveys show that safety is the main reason parents give kids a cell phone.⁵⁹² Parents prefer to acquire cell phones for older children – the average age of a child whose parents provided the phone is 19 years,⁵⁹³ and Mobile Village (2003) reports that people are more likely to buy a cell phone for a college child than for a teen or pre-teen. **To some extent, owning a cell phone has become a rite of passage, like getting a driver’s license, and is indeed often associated with beginning to drive.**⁵⁹⁴

Children are, however, beginning to acquire phones a lot earlier, even as young as eight years old.⁵⁹⁵ This is due to several reasons including 9/11, incidences of school shootings and the generally increasing pressure from kids as more of their peers get cell phones.⁵⁹⁶ For instance, a father interviewed by *The Washington Post* states that his kids have cell phones because after 9/11 he wants to always be able to find out where they are.⁵⁹⁷ Knowing that they can contact their children wherever they are gives parents a sense of security and arguably makes them more willing to give children greater freedom of movement. A practical illustration of this is that schoolchildren no longer need to go straight home after school so that their parents can call the landline from the office to check in on them.⁵⁹⁸ Thus, while giving parents the security of a lifeline to their children, wireless phones also give children greater levels of the privacy and independence they crave.

Wireless phones enhance young people’s sense of independence from family by allowing them to distance themselves from parents and move closer to friends. To them the cell phone is a source of empowerment.⁵⁹⁹ It is interesting to note, though, that this ability to exercise independence does not mean the youth neglect their ties to family. Surveys indicate that young people maintain a high degree of communication with their families via wireless technology. For example, Fattah notes that U.S. teenagers communicate wirelessly with their parents as often as they do with friends.⁶⁰⁰ This assertion is supported by data from TNS (2004), which shows that young people use the mobile

⁵⁹² Noticiaswire (n. d.); Teenage Research Unlimited (February 7, 2003).

⁵⁹³ In-Stat/MDR (February 3, 2004).

⁵⁹⁴ Fattah (2003).

⁵⁹⁵ Selingo (2004).

⁵⁹⁶ Lewis (n.d.); Noguchi (2004); Wetzstein (2003).

⁵⁹⁷ Noguchi (2004).

⁵⁹⁸ Elkin (2002).

⁵⁹⁹ Ibid.

⁶⁰⁰ Fattah (2003).

phone mostly to call friends (60%) and family (59%).⁶⁰¹ It appears, that youth in the US accept parental surveillance (e.g. the need to check-in often) as an avoidable part of their existence.

The availability of wireless communication technology then modifies but does not eliminate the power relations between parents and children. In fact, children become even more susceptible to being tracked down via their wireless devices; without a cell phone, parents had to wait for children to return home to find out where they've been, with a cell phone parents can get real time information on their children's location.⁶⁰² There is also some anecdotal evidence that while cell phones may reduce the amount of control parents have over their children's physical movements, they may also be fostering better parent/child relationships (e.g., increased trust, quick feedback and ability to deal with issues on the spot) through the instantaneous communication links they enable.⁶⁰³

For teens, and pre-teens especially, cell phone expenses are borne by parents, and parents are heavily involved in the purchase and use of cell phones.⁶⁰⁴ This may partly explain the high levels of wireless communication between young people and their families. Although children are reported to have large amounts of disposable income – teenagers spend about \$174 billion a year⁶⁰⁵ – most of them have to earn their finances through formal employment or household chores, rather than get it as pocket money – only 25% of US children receive pocket money.⁶⁰⁶ It is not surprising, therefore, that, **in addition to style and features, American youth are most sensitive to cost when it comes to buying wireless communication devices.**⁶⁰⁷

The autonomy young people enjoy as a result of owning wireless communication devices still operates within a framework of rules from parents setting some boundaries for how these devices are used (e.g. in terms of cost and keeping in touch), especially when parents are paying the bill. The World Youth Report states that, “mobile communication creates what one might call an extended umbilical cord between youth and their parents.”⁶⁰⁸ There are also still societal concerns about young people and wireless communication technology which leads to attempts to place limits on their use.

⁶⁰¹ TNS (2004), also see Bautsch et al (2001).

⁶⁰² Taking this to a higher degree, several organizations are already developing high-tech wireless tracking devices targeted at parents (e.g., Schwartz, Ephraim (2002). For the children. *Infoworld*, August 26, p.28. From www.infoworld.com).

⁶⁰³ E.g., Dunlap (2002).

⁶⁰⁴ E.g. Ryan, 2000).

⁶⁰⁵ Anfuso (2002); Teenage Research Unlimited (January 9, 2004).

⁶⁰⁶ Anfuso (2003); TNS (2004).

⁶⁰⁷ Teenage Research Unlimited (May 30, 2002).

⁶⁰⁸ The World Youth Report (2003, p.322).

For example concerns about the impact of cell phone radiation on the brains of young people and also concerns about driving accidents. Senate recently cleared a bill that would ban 16 and 17 year-olds from using cell phones while driving.⁶⁰⁹

4.2.2. *Community and Connectivity*

As mentioned above, young people may seek to be independent, but not completely. An aspect of their lives is also to build their own communities and to be connected to those they choose. Hence there appears to be a unique differentiation in their uses of different communication technologies for different purposes. For example, some studies have found that young people use email mainly for making contact with non-family adults, such as teachers and employers⁶¹⁰ while other methods such as cell phone conversations, instant messaging (IM) and SMS are used to communicate with family and friends.⁶¹¹

Furthermore, the “new digital divide” developing between youth with cell phones and those without cell phones is seen in concrete form as inclusion in social networks is frequently tied to ownership of a means of wireless communication.⁶¹² In addition to maintaining relationships through face-to-face contact, young people are able to strengthen, solidify, and coordinate these relationships through the seamless, always-on link afforded by wireless communication devices. In fact a study by Context found that teenagers were so immersed in the technology that **they saw no difference between face-to-face and cell phone interactions**,⁶¹³ clearly illustrating the technosocial sensibility.⁶¹⁴ Without ownership of one of these devices, a young person cannot expect to be a meaningful part of the social networks of say, cell phone owners. It is clear that the wireless industry has understood and is fueling this trend with its in-network pricing packages. An ad currently running on television illustrates this mindset: a group of young girls state that they do not talk to people who do not have the same phone plan as they do, not because they are mean, but because they are better shoppers. Thus, it is now not only about having a means of wireless communication, but there is also a differentiation around what wireless plan you have. Of course this is purely an industry construction;

⁶⁰⁹ Coburn (2004).

⁶¹⁰ Schiano, Chen, Ginsberg, Gretarsdottir, Huddleston, and Isaacs (2002).

⁶¹¹ Ibid.

⁶¹² E.g., Batista, 2003).

⁶¹³ Ibid.

⁶¹⁴ David and Russell, 1999).

whether the youth will allow the wireless network system to dictate their social networks remains to be seen.

4.2.3. *Personal Identity*

Personal identity is important to the youth, especially teenagers.⁶¹⁵ This can be seen in their attitudes and preferences for mobile technology and its products such as cell phones, ringtones, wallpaper and icons. Ownership of wireless communication device affords autonomy, this is followed by personalization of the device, in a sense to attach to this ubiquitous device, an individual character. Music, for example, is an important form of self-expression for young people in the U.S., and wireless communication technologies, such as musical mobile phones allow them to express their identity more visibly, virtually on a constant basis⁶¹⁶ and in tune with current fashions and fads.

One of the major wireless data activities among the youth is thus the downloading of ringtones. After voice communication with family and friends, and downloading games, downloading ringtones is the next most popular activity among US youth aged 6-14, for example.⁶¹⁷ Their willingness to pay for these types of wireless data services has been observed by a number of surveys,⁶¹⁸ indicating that young people consider personal expression important enough to pay for the ability to do so in unique ways. According to entertainment and cell phone executives, “the biggest market for ringtones is teenagers, for whom simply owning a cell phone is no longer distinctive.”⁶¹⁹ According to research by The Yankee Group, in 2003, 41% of young adults and 22% of teenagers in the U.S. downloaded at least one ringtone per month.⁶²⁰ During the same year, cell phone users spent between \$80m and \$100m on ringtone downloads.⁶²¹ The importance of this element of personalization may decline with age, as Schiano et al found in their study of teens and preteens in affluent Palo Alto that younger teens were more concerned with personalization, entertainment and the coolness factor, while older teens were more concerned with utility.⁶²²

⁶¹⁵ Smith (2004); Wilson (2003).

⁶¹⁶ Petroff (2002).

⁶¹⁷ TNS (2004).

⁶¹⁸ Dano (2004); Petroff (2002).

⁶¹⁹ Tedeschi (2004, p.C5).

⁶²⁰ Marek (2004).

⁶²¹ Tedeschi (2004).

⁶²² Schiano, Chen, Ginsberg, Gretarsdottir, Huddleston, and Isaacs (2002).

The whole concept of individuality may also have some limitations. For example, some industry analysts have concluded that what works for the teenage market is “prepackaged individuality,” having found that cell phone features that give users publishing capabilities (e.g. ringtone composing) are not popular with teens.⁶²³

4.2.4. *Entertainment*

Preliminary analysis of patterns among young people shows that when the youth make spending choices, **entertainment is key**.⁶²⁴ A study reports that US teenagers’ primary objective is to have fun while they are young, in anticipation of a more restrictive and responsibility-laden adult life.⁶²⁵ Technology plays a central role in this pursuit of fun. Thus, the number one answer from the study’s 2000 respondents describing their peer group was “we’re all about fun” while the number two answer was “high-tech is such a (huge) part of our lives.” One aspect of this is high-tech games, which seem to be particularly important to this group. American kids aged 6-14years spend most of their money on games (63%), clothes (31%) and CDs (27%).⁶²⁶ As Table 17 shows, entertainment is a major component of young people’s wireless communication usage. Games accessible via cell phone provide US teens with immediate gratification, peer influence and the convenience of not carrying an additional electronic gaming device.⁶²⁷ Thus, **despite lagging behind their peers in other countries in wireless technology uptake, US youth are reported to have a higher level of wireless games downloading than youth in Europe and Asia**.⁶²⁸

One finds the youth straddling the boundaries of childhood and adulthood, hence the high importance of entertainment in their mobile usage alongside other more utility-based uses. As Sefton-Green notes, new digital technologies provide children with realms of “adultification” and “juvenilization,” that is, the ability to act as adults while remaining immersed in the world of leisure and games.⁶²⁹ While some may criticize the predominance of entertainment in youth wireless usage, one should also

⁶²³ Lee (2002).

⁶²⁴ TNS (2004).

⁶²⁵ Teenage Research Unlimited (2000).

⁶²⁶ TNS (2004).

⁶²⁷ Petroff (2002).

⁶²⁸ TNS (2004).

⁶²⁹ Sefton-Green (1998).

acknowledge that play is a valid aspect of human existence, which just happens to be more apparent in youthful days.⁶³⁰

Role of wireless communication in young people's lives

What these data indicate is that wireless communication devices are not just another high tech status symbol or source of entertainment, independence or identity creation. **They are also an important tool for young people, and perhaps especially teenagers, to organize and cope with their mobile lives, as well as those of their parents, and to negotiate the boundaries between childhood and adulthood.** Wireless communication technologies open up new possibilities for the youth to loosen their ties to the supervisory elements of their lives while remaining accountable. In a way, they also enable parents and guardians to rationalize the loosening, if not abdication, of their perceived duty to set boundaries for their children. Thus wireless communication technology makes possible the mobile lifestyle but also justifies participation in the mobile lifestyle.

4.3. YOUTH IN THE ASIAN PACIFIC

Mobile youth culture is quickly emerging in the Asian Pacific. Drawn from her fieldwork, interviews, and studies of communication diaries, Misuko Ito observes in the Japanese context that, mobile phone is having profound influence on the patterns of youth social networking and their relationship with elders as “a personal device and communications that are a constant, lightweight, and mundane presence in everyday life”⁶³¹ On one level, this observation is confirmatory with what we have learned in Europe and the United States. And we can see a lot of general similarities among mobile youth cultures in the four countries under our examination – Japan, South Korea, the Philippines, and China – in terms of their consumerism, faddish trends, cultural identity, peer group formations, relationship with existing social institutions (e.g., family and school), and the tendency towards more “flexible” social networking in space and time.⁶³²

On another more specific level, the context in which the mobile youth culture emerges is also significantly different, both from the Euro-American experiences and among the four countries of the

⁶³⁰ E.g., Sandvig (2003, p. 179).

⁶³¹ Ito (2004, p. 1).

⁶³² Or the “softening of time” (Rheingold, 2002, p. 5).

Asian Pacific region. As discussed earlier, the wireless diffusion and social differentiation patterns are quite diverse, given more economic disparities among the countries (Japanese and Korean youth being much wealthier than their average Filipino and Chinese counterparts) and among groups of young subscribers at different socioeconomic status, who are using the latest 3G or MMS services vis-à-vis pre-paid or other low-end services such as China's Little Smart. Moreover, there is also a high degree of cultural dissimilarity within the Asian Pacific region, which means young people in the four countries are subject to different structural conditions.

Given the above reasons, if we see a consistent pattern of mobile culture among youth populations across the Asian Pacific, or better, if this pattern is also consistent with what we see in Europe and America, this would add greatly to our argument that a youth culture is emerging globally, which "finds in mobile communication an adequate form of expression and reinforcement."

However, at this point, we can only draw a very tentative answer – which is yes, there is a global mobile youth culture – because academic research is insufficient regarding young people and mobile phones in the Asian Pacific, especially in the two less developed markets of China and the Philippines. It is therefore an urgent task for researchers to fill in this gap of information by examining youth mobile usage there, not only in Beijing and Manila but also in smaller cities and towns or even the countryside, from a comparative perspective with regional or even global reach.

4.3.1. Youth in Japan

Although mobile phone was originally started as a business-oriented technology in Japan, it was the younger generations, especially students, who constitute the most prominent mobile phone user group.⁶³³ As reviewed earlier, cell phone penetration is much higher among high school (76.8%) and college (97.8%) students than the general population (64.6%).⁶³⁴ Students also pay higher monthly cell phone bills (on average JPY 7186 or USD 67.5) than the general population (JPY 5613 or USD 52.7).⁶³⁵ In Tokyo, young urbanites spend an average amount of USD 150 on their cell phones each

⁶³³ See Kenichi Fujimoto cited in Ito and Daisuke (2003, p. 10).

⁶³⁴ Yoshii et al (2002) cited in Ito and Daisuke (2003, p. 5).

⁶³⁵ IPSe (2003) cited in Ito and Daisuke (2003, pp. 5-6).

month to exercise their consumer power resulted from the fact that “a generation of declining birthrates has filled Tokyo with one-child families.”⁶³⁶

While the rise of *oyayubisoku* – a term meaning literally “the Thumb Tribe” that describes the youngsters who can type cell phone messages by moving their thumbs at extraordinary speed, sometimes without even looking at the handset – continues to amaze western scholars,⁶³⁷ Japanese researchers such as Tomoyuki Okada see *keitai* cultures as developing “out of the fertile ground of youth street practices and visual cultures and a history of text messaging that extended back to youth pager use from the early nineties.”⁶³⁸ These practices, while being facilitated by new technologies, reflect the structural conditions that constrain social activities of the Japanese youths. According to Ito and Daisuke, “**Teens use mobile phones because they enable new kinds of social contact, but also because teens are limited in access to adult form of social organization.**”⁶³⁹ In more specific terms, this means that:

While youth do have large amounts of discretionary time, energy, and mobility that is the envy of working professionals and parents, they are limited in their activities by their weak social position and limited access to material resources. Their lives are governed by certain structural absolutes, such as dependence on parents, educational requirements, and regulation in public places.⁶⁴⁰

Besides financial dependence on adults, other fundamental structural constraints include (1) the tiny size of average Japanese households, which means urban youth usually have to socialize in public spaces such as the streets, (2) the prohibitively high cost to set up a landline (from USD 600 and up, about twice to get a cell phone), and (3) the tradition for parents to use the home phone to monitor and regulate children’s relationships with their peers.⁶⁴¹

Under such circumstances, the prevalence of *keitai* among the urban youth provides a relatively autonomous “space of persistent connectivity,”⁶⁴² operating within the “power geometry of space-

⁶³⁶ McGray (2002, p. 52).

⁶³⁷ Rheingold (2002, pp.4-8).

⁶³⁸ Ito (2004, p. 8).

⁶³⁹ Ito and Daisuke (2003, p. 1).

⁶⁴⁰ Ibid.

⁶⁴¹ Ibid, pp. 9-10.

⁶⁴² Ito and Daisuke (2003, pp. 1, 4, 19).

time compression”⁶⁴³ that involves social dynamics inherent in the institutions of family, school, public spaces, and peer group relationships. By “power geometry” Ito and Daisuke understand “the social, material, and cultural” relations that are integrated in specific places where mobile phone usage, “far from destroying the integrity of place with unfettered communication,” actually “participate[s] in the structuring of new forms of place-based norms and disciplines.”⁶⁴⁴ For example:

[W]e can understand youths’ penchant for text messaging as an outcome for a wide range of factors. These include the unique expressive functions and styles of this form of communication, as well as certain economic and historical factors unique to this generation. ... we have focused on factors that relate to regulation and surveillance in particular places. Japanese youth, particularly high-school students move between the places of home, school, and urban space that are all subject to a high degree of regulation and surveillance by adults. Even urban space is highly regulated by certain codes of social conduct as well as a range of regulatory efforts that limit communications on public transportation. Unlike the institutions of family and school, youth peer groups and couples are “institutions” that lack ownership and control of place. The outcome of these power-geometries is that couples and friends have few opportunities for private conversation. Although a limited form of contact, mobile email has fulfilled a function akin to co-presence for people that lack the means to share the same private physical space.

There are a few ways for the mobile phone-facilitated youth networks to materialize, as recorded by several studies that we have reviewed in Section 3. While McVeigh argues that the use of mobile phones strengthens the trend of **individualization**, in which young people are becoming increasingly self-centered,⁶⁴⁵ Matsuda sees the emergence of a “**full-time intimate community**.”⁶⁴⁶ While Ichiyo Habuchi is concerned about “**tele-cocooning**,” i.e., the production of social identities in small, insular social groups through mobile communications,⁶⁴⁷ Ito describes how mobile usage creates an “**augmented co-presence**” that functions at the center of the youth groups before, during, and after their social events.⁶⁴⁸

⁶⁴³ Ibid; Massey (1993).

⁶⁴⁴ Ibid, p. 20.

⁶⁴⁵ McVeigh (2003, pp. 24-32).

⁶⁴⁶ Cited in Ito (2004, p. 11).

⁶⁴⁷ Cited in Ito (2004, p. 11).

⁶⁴⁸ Ito (2003b).

Besides family and public space, which most of the above studies are focusing on, school is another institution for the study of youth *keitai* culture. A survey found that, although only 35 per cent of Japanese college students have personal computers, 92 per cent of them have mobile phones.⁶⁴⁹ Given such findings, Rikkyo University of Tokyo launched a Web site so that students can use Internet-capable mobile phones to check lecture schedules, communicate with staff, and catch up on missed lecture material. Rikkyo also designed a system to convert standard PC Web site to i-mode reception. This is a notable development that shows the growing functional (as opposed to affective) dimension of mobile phones in terms of not only coordinating peer group meetings but also providing youth with a new tool in their education and career development.

In addition to mobile e-learning applications, students also use *keitai* to challenge the authorities of educational institutions. For instance, the rampant use of cell phone during classes worry some university professors. One of them became “so intrigued by the intense silence in his classes that he decided to investigate what had caused the change. He found out by turning off the lights, revealing the glow of myriad *keitai* monitors. All of the students were busy e-mailing.”⁶⁵⁰ “Long gone are the days when students babbling amongst themselves plagued university professors’ classes. Instead, students are now more likely to ruin a class by being totally silent.”⁶⁵¹

In response, some high schools have banned mobile phones in classrooms and high school teachers would take the phones if discovered.⁶⁵² Despite the heightening of school-imposed control, all respondents in Ito and Daisuke’s study, including both high school and college students, said that they would read and sometimes send messages during class, although they would not use voice call.⁶⁵³

The Japanese youth is, however, not a monolithic social group but one with a high degree of internal variation. The social activities of high school kids, for example, are often coordinated around local fast food restaurants on the way home from school, whereas the lifestyle of college students are more flexible with gatherings in cafes, stores, bars, and karaokes.⁶⁵⁴ With increasing command on material

⁶⁴⁹ Gottlieb and McLelland (2003, p. 5).

⁶⁵⁰ Sawa (2000, p. 12).

⁶⁵¹ Ibid.

⁶⁵² Ito and Daisuke (2003, p. 12).

⁶⁵³ Ibid.

⁶⁵⁴ Ito and Daisuke (2003, p. 9).

resources, young professionals may enjoy even more autonomy, although many of them still have to share room or apartment with their families due to high prohibitively rent in Japan's urban areas.⁶⁵⁵

There are other aspects of mobile youth culture in Japan such as its ultra consumerism and the “cute culture” or “culture of *kawaii*,” which we have discussed in Section 3 because these trends among Japanese youth overlap so significantly with the general characteristics of the entire mobile market. Of particular relevance to our discussion here is the case of *kogyaru* (high school gals), which is “a label attached to the newly precocious and street savvy high school students of the nineties who displayed social freedoms previously reserved for college students.”⁶⁵⁶ With the help of the new technology, we can not only see the familiar “emancipation” of youth as seen elsewhere but is of specific significance in Japan because it “flies in the face of mainstream norms that insist that young women be modest, quiet, pale, and domestic.” Yet, on the other hand, most Japanese schoolgirls including full-blown *kogyaru* “tend not to have oppositional relationship with their parents and teachers.”⁶⁵⁷ They often maintain a split personality and hide their *kogyaru* identity in front of elders, an observation that echoes our analysis of youth culture in the network society in terms of young people's management of autonomy vis-à-vis security.

4.3.2. *Youth in South Korea*

As reviewed in Section 2, teenagers are playing a leading role in using mobile phone, especially SMS in South Korea.⁶⁵⁸ As a result, mobile operators are offering specialized rate plans for different youth age groups and adding new services such as mobile-based entertainment to meet the demand of mobile youth culture.

As being observed elsewhere, mobile phones are enabling young people to gain more autonomy from their parents, who can no longer keep surveillance as they could with wired telephone at home.⁶⁵⁹ Lovers and friends are adopting a more flexible manner of making appointment.⁶⁶⁰ And the

⁶⁵⁵ Ibid, p. 9.

⁶⁵⁶ Ito and Okabe (2003, p. 6).

⁶⁵⁷ Ibid.

⁶⁵⁸ Cheil Communications (2003).

⁶⁵⁹ Kim, S.-D. (2002)..

⁶⁶⁰ Ibid, p. 73.

traditional top-down communication dominated by the elders is starting to be eroded as more youngsters are adopting mobile phone.⁶⁶¹

The most notable manifestation for the power of mobile-equipped youth is of no doubt the Nosamo movement in 2002, which played a crucial role in sending Roh Moo-Hyun to his presidency. This is such an important event that because it effectively mobilized “the 20- and 30-somethings who might have otherwise sat out the election because of cynicism about the political process.”⁶⁶² We will have more focused discussion on the socio-political aspect of Korea’s mobile youth culture in the next section.

However, despite all the independent, or even revolutionary, tendencies of the young mobile users, the study conducted by Kyong-Won Yoon, which we will focus on in the following, shows something different.⁶⁶³ Yoon interviewed teenagers aged 16-17 from four schools in Seoul on one-to-one basis or in small groups, with email follow-ups. A number of diary-type self-reports were also collected. He finds that the teenagers use mobile phone for three main purposes: first, mobile phone plays a supplementary role to school relations based on current, face-to-face communication; second, it helps sustain relationship with old friends and peers in other schools, whom the teenagers can not physically meet on frequent basis; third, mobile phone is also used to maintain newly acquired relationships.⁶⁶⁴

Contrary to the theme that mobile phone would dramatically increase the autonomy of teenagers, Yoon discovers that **the adoption of mobile phone plays a major role in reinforcing traditional structures of family, school, and youth peer group under the *cheong* networks.**⁶⁶⁵ “Cheong is an expression of affective and attached relationships between people closely related to one another.”⁶⁶⁶ It is “an extended form of familism” maintained by deep commitment and prolonged communication that last many years and decades.⁶⁶⁷ Hence his main argument is that social adaptations surrounding mobile phones in fact “**immobilize**” the new technology.

⁶⁶¹ Ibid.

⁶⁶² Demick (2003); Rhee (2003, p. 95). See also “Victory for ‘Nosamo,’ makers of president,” *Korea Times*.

⁶⁶³ Yoon (2003b).

⁶⁶⁴ Ibid, pp. 330-331.

⁶⁶⁵ Ibid, p. 329.

⁶⁶⁶ Yoon (2003b, p. 327).

⁶⁶⁷ Ibid, p. 328.

The authority of parents is maintained regarding the usage of mobile phone because a large number of teenagers received their handsets as gifts from the older generations. Parents can exert significant influence on how mobile phones are used through the control over phone bills. Mobile phone also helps parents to track down the kids constantly and give orders anytime, anywhere.⁶⁶⁸

It is interesting that Yoon chooses the term “immobilize the mobile” or “retraditionalizing the mobile,” which essentially describes the same phenomenon of mobile culture reinforcing existing power relationships. But he is using a much stronger term implying that **the mobile phone has been appropriated to such an extent that it is losing some of its innate qualities, such as mobility or the potentiality to be against traditions.** This assessment, although possibly overstated in the context of other countries, may be accurate in South Korea given the strong hierarchical social structure, especially the father-centered family order, which stands out in comparison to not only Europe and America but also its Asian Pacific neighbors.

Yoon’s observations are, however, also consistent with research findings in other countries in several ways. First, mobile phone facilitates the extension and sustenance of existing human networks among teenager peer groups. He found a range of sharing activities such as the borrowing and lending of handsets, collectively receiving and sending messages, and the circulation of certain messages (e.g. morale support messages during term exams), all of which allow young people to “engage in reinforcing their feeling of family-like friendship.”⁶⁶⁹

Second, a new set of etiquette has been formed regarding how to use the mobile telephone. If one refuses to share his/her mobile phone, it is often considered “really not cool” and “irritating.”⁶⁷⁰ Another practice that breaks the reciprocity of communication in these networks is the so-called “chewing out” (*Ssibgi*) that refers to ignoring calls or messages from others. As one respondent said, “The most upsetting thing in using the mobile is to receive an insincere reply and to be chewed out by the person to whom I have sent a message.”⁶⁷¹ The importance of the m-etiquette to avoid chewing out is expressed in another occasion when a student explained why she discharged the battery of her mobile for a while:

⁶⁶⁸ Ibid, pp.333-336.

⁶⁶⁹ Ibid, pp. 336-337.

⁶⁷⁰ Ibid, p. 337.

⁶⁷¹ Ibid, p. 338.

If someone asks me “Why did you discharge the battery? Why don’t you just ignore it when you receive bothering texts?” I will say, I am a quite honest person and I’d rather die than chow out messages from others. Ha ha.

Young people are also using mobile phone to transmit messages that otherwise may cause embarrassment if they are delivered face-to-face. This is evident in the following quotation from a female student:

When I bought a mobile for the first time, I made peace with my friends with whom I had quarreled, you know, she also had a mobile. Because ... I was so excited ... so, I sent a message to the friend ... I messaged, “I did something wrong to you last time ... sorry about that” ... and then, we began to get along together again.

Finally, Yoon’s ethnography of high-school students may not readily apply to other age groups (including college students) given the special dependent social positioning of secondary school teenagers. Since he chose to look at “mainstream” students, it is unclear to what extent the theme of “immobilizing mobile phone” would fit with more marginal youth subcultures. But Yoon’s analyses have systematically shown the ways in which mobile phone adoption may not challenge existing social order of families, schools, and peer group networks. Instead, the new technology enables the strengthening of the old.

4.3.3. *Youth in the Philippines*

The case of the Philippines differs from Japan and South Korea as a developing country with lower income, more religious diversity, and a multi-faceted colonial history, which impinges upon the local language to create particular manifestations of its youth mobile culture such as the shorthand texting language.

As discussed in Section 2, the income factor is behind the popularity of pre-paid phone card usage among Filipino youth, as well as SMS and texting.⁶⁷² For instance, “In the Philippines, texting has been the preferred mode of cell phone use since 1999, when the two major networks, Globe and

⁶⁷² Arnold (2000); Salterio (2001); Hachigian and Wu (2003).

Smart, introduced free and, later on, low-cost messaging as part of their regular service.”⁶⁷³ Media accounts in the country often claimed that the Philippines was “the text messaging capital of the world.”⁶⁷⁴ In 2001, about 100 million text messages were circulated everyday in the Philippines, which “puts the country well ahead of previous world leader Germany by 1 billion messages a month.”⁶⁷⁵

Inexpensive texting, together with prepaid mobile phone cards, “give cell phone providers a way to attract a broad spectrum of users from different income levels.”⁶⁷⁶ While in Metro Manila there is a considerable mobile “mania” among youth (as seen in Section 3.3), nationwide it is the professionals in their mid-30s (age 33-36) who turn out to be the most active texters according to a survey of 500 users in 9 regions.⁶⁷⁷ This is quite different from the cases of more wealthy countries where teenagers and college students are the most active but it is understandable due to income discrepancy among the nations.

Texting has given rise to “an apparently novel social category: *Generation Txt*... An obvious pun on *Generation X*, *Generation Txt* was first used as an advertising gimmick by cell phone providers to attract young users.”⁶⁷⁸ It was then picked up and popularized by journalists to refer to young Filipino texters. With their help, *Generation Txt* has become a central signifier in symbolizing the collective identity of SMS-equipped urban Filipino youth.

The predominant language used by *Generation Txt* is a shorthand form of “Taglish,” the urban lingua franca that combines Tagalog, English, and Spanish.⁶⁷⁹ In order to type faster, “Where are you?” becomes “WRU”; and “See you tonight” becomes “CU 2NYT.”⁶⁸⁰ While the creation of this new language format has to do with the limited content capacity of SMS, the rising price of texting, and the goal to achieve more efficiency with thumb movements, texting Taglish has also been a process through which collective identity of the Filipino mobile youth culture is constructed and sustained.

⁶⁷³ Rafael (2003, p. 404).

⁶⁷⁴ Hilado (2003); Kaihla (2001).

⁶⁷⁵ Bociurkiw (2001).

⁶⁷⁶ Rafael (2003, p. 404).

⁶⁷⁷ Toral (2003, p. 174). This is quite different from Japan and Korea, where teenagers and college students are the most active in using SMS.

⁶⁷⁸ Rafael (2003, p. 407).

⁶⁷⁹ Rafael (2003, p. 404).

⁶⁸⁰ Arnold (2000).

It was this kind of shorthand Taglish that composed millions of messages being transmitted during People Power II, the dramatic showdown in 2001 between Generation Txt and the country's sitting president, Joseph Estrada. This is to be discussed in a systematic manner in Section 5.

4.3.4. *Youth hin China*

Despite the size of the Chinese market, so far there has been little research with regard to the country's youth mobile culture and the influence of adoption upon young people's existing social relations at school, at home, and within peers groups. Except our preliminary study involving young migrant workers, the majority of reports are journalistic, which give a sketch of youth mobile phone usage patterns that seems to be not too different from what we have learned in other Asian Pacific countries. Picking up the Japanese phrase, urban magazines have started to celebrate China's own youth "Thumb Tribes."⁶⁸¹ Like the Filipinos, Chinese youngsters are most active in using certain services such as SMS due to its faddish appeal and much lower price than voice telephony.⁶⁸² They also customize cell phone into an "artifact" to demonstrate individuality, using all kinds of "hand-phone cosmetics" made from crystal, feather, silver, in the shapes of Hello Kitty, Garfield, flowers, and animals.⁶⁸³ The various elements in combination are giving rise to a youth culture that draws much attention from journalists and ordinary urban residents. Just like in many other countries, there is a growing concern among the older generations about this new emergence, which nonetheless is at the very core of identity formation processes among youth.

What is peculiar in China in terms of youth mobile phone culture has to do with the explicit role of commercial promotions that often involve mass consumption MNCs of some kind. The phenomenon also exists in other Asian countries, but it surfaced quite prominently in the Chinese case, as reflected in the conference "Marketing to Teenagers in China."⁶⁸⁴

One example was the Coke Cool Summer contest.⁶⁸⁵ During July – August 2002, Coca-Cola China hosted this interactive contest that generated 4 million SMS messages in 34 days. To win, users had to correctly guess the highest temperature in Beijing everyday, based on the highest temperature of

⁶⁸¹ See *New Weekly* special issue on the "Thumb tribes" of China, July 15, 2002.

⁶⁸² Sohu-Horizon Survey (2003).

⁶⁸³ Yue (2003).

⁶⁸⁴ See the conference program at: <http://www.21cms.com/DMM/200404/CN108%20Marketing%20to%20Teenagers.pdf> (access on July 1, 2004).

⁶⁸⁵ "Coke pulls off SMS campaign success in China."

yesterday which was text messaged to their handsets on daily basis. The prizes include one year's free supply of Coke & new Siemens mobile phones. Participants could also download the Coke ad jingle and mobile coupons that gave away free ice creams at McDonald in Beijing and Shanghai. At the end of the event, 50,000 downloads of the Coke ringtone and 19,500 downloads of the McDonalds Mobile coupons were recorded. KFC, among others, also launched similar SMS-based ad campaigns.⁶⁸⁶

These ad campaigns highlight an aspect of the youth mobile culture that has been so far inadequately addressed. Many existing studies emphasize that cell phone adoption gives young people independence and autonomy,⁶⁸⁷ whereas others argue otherwise, contending that cell phone usage does not necessarily cause clash with the older generation, rather, it may even reinforce existing power relationships in the household.⁶⁸⁸ While both arguments may be true, there is a third dimension of this consumption culture clearly showing that cell phone can further empower large corporations in shaping the consumerist identity of young cell phone users. Given the susceptibility of youth, and peer group pressure now materialized in the hyper-fast mobile phone social networks, individual youngsters now have very little autonomy or independence to not get involved in the commercial vogue created by the likes of McDonalds and KFC.

Meanwhile, the expansion of SMS market among youth owes to the promotion of content by all three of China's Internet portal sites (Sina, Sohu, and Netease), which are the main daily content providers of subscription-based text messages, ring tones, and images provided.⁶⁸⁹ Using Internet websites to attract subscribers, then delivering content via SMS, and finally collect fees as part of the phone bill, this has indeed become a new business model that brought new prosperity to the three dot-com's. To increase SMS circulation, these content providers also hire a team of "SMS authors (*duanxin xieshou*)" who put all their creativity into writing jokes, hoaxes, erotica, and congratulatory greetings that are crispy, condensed, and fleeting, in order to actively target this youth market.⁶⁹⁰

Finally, a large portion of China's 100 to 150 million migrant population are youth. While many cannot afford for mobile services, an increasing number of them have started to adopt, especially

⁶⁸⁶ "KFC m-coupon boosts chicken wrap sales."

⁶⁸⁷ Katz and Aakhus (2002); McVeigh (2002).

⁶⁸⁸ Ito and Okabe (2003); Yoon (2003).

⁶⁸⁹ Clark (2003).

⁶⁹⁰ Long Chen, "I AM A Backstage Manipulator of SMS Culture (*wojiushi duanxinwenhua de muhouheishou*)," Guangzhou: *New Weekly (xinzhoukan)*, July 15, 2002, p. 39.

those with relatively better education and working in more wealthy regions or better-paid professions, as we learned in our fieldwork. Our focus group, interview, and survey data show that migrant youth is not only a huge potential market, but they have already spent a higher percentage of their monthly income on mobile services than average long-term residents. Although they face more problems in usage such as discrimination from operators and mobile phone theft or deception, they tend to attach specific cultural value to the mobile device such as social status, autonomy, and freedom. As discussed in Section 3, a male 21-year-old migrant in Guangzhou spent an entire year's saving on a new cell phone due to not only functional needs but also a social and psychological penchant to achieve this status symbol in order to show it off in front of friends or even strangers in the public space. Another female factory worker, aged 19, who did not have mobile phone at the time, complained how texting was taking up most of the free time of her dorm-mate:

Every night and every weekend, she just sits on her bunk bed spending hours and hours staring at the handset, typing, smiling, and making all kinds of facial expressions. It was annoying because, while doing this, she completely ignores the rest of us, whatever happens in the dormitory. We (including all other dorm-mates) all find it annoying. It's disrespectful.

In this case, a few cultural processes were taking place. The texter was using the handset to bypass the immediate built environment surrounding her – the factory dormitory and bunk bed – to get connected with her intimate social networks. But in so doing, she is also silently showing off to her peers her supposedly higher social status, signified by the gadget, her capacity to type with the thumb, and the fact that so many people in her network are exchanging messages with her. Meanwhile, this was triggering tension within the dormitory, making the non-adopters to feel neglected, annoying, and possibly also the pressure to buy their own mobiles.

With new low-end services such as the Little Smart, which supports both voice telephony and SMS, more young migrants at the lower social strata are adopting mobile phones. Our fieldwork does not allow us to systematically analyze the content of mobile phone communications among the migrant youth, to see if it is significantly different from youth mobile usage among long-term urban residents. But based on what we learned in interviews and focus groups, when young migrants talked about the way they perceive the technology and its social uses, a preliminary finding is that it is still too early to see a distinct youth mobile (sub)culture among the young migrants complete with its identity and linguistic signifiers. By and large, the young migrant adopters remain under the cultural dominance

of long-term urban residents, especially the mobile youth culture constantly shaped by middle-class youngsters in major urban centers. The migrant youths are still in a process of trying to catch up, rather than cultivating a cultural space of their own.

4.4. SUMMARY

This section shows that overall a youth culture is emerging across Europe, the United States, and the Asian Pacific when it comes to the ways in which young people use the mobile phone. Ample evidences have been collected and analyzed with regard to the following characteristics of this mobile youth culture:

1. Young people across the world are quick in adopting and appropriating mobile technologies because in general they use these new services with more intensity for all kinds of purposes in their everyday life. As a result, they become a first major social group that are constantly networked through wireless communications, and in so doing they reveal more quickly the potential uses of the technology compared to people of older age.
2. Mobile phone usage is transforming youth cultures around the world by two interconnected processes. While the technology enhances the autonomy of young people as an independent, communicating Self, it often does not lead to the weakening of the dependency relationship between youth and traditional social institutions, especially the family in the forms of financial support and/or parental surveillance. Mobile-equipped young people in different societies thus face the same central question, that is, how to manage the new chance for autonomy under the existing structural conditions imposed on them, most importantly in the family and at school.
3. The mobile youth culture, as a new set of values and attitudes that inform practice among the younger generations, is a typical networked culture. Peer groups formed at school or in residential neighborhoods often serve as the basis. What the spread of mobile phone does is to reinforce and extend the existing youth networks and drive them towards a higher level of networked sociability, when face-to-face interaction is equated with mobile-based communication, when a “full-time intimate community” is taking shape. The process of

reinforcement is also a process of selection because, as researchers found in multiple occasions, communication in mobile youth networks is usually restricted to a small circle of close friends.

4. Mobile youth culture in many countries, such as those in the Asian Pacific, is characterized by a strong tendency of consumerism. This is materially manifested in the appropriation of mobile handset as a fashion item and the entertainment dimension of youth mobile usage. While being used in the public space, mobile devices are also displayed as a notable object of consumption.
5. With the diffusion of technology, mobile phone has become a central device in the construction of young people's individual identity. This is particularly so due to the new opportunity to personalize handsets and messages as well as one's autonomy to decide how to use the technology anytime, anywhere.
6. A new collective identity with global relevance is emerging from the mobile youth culture. It is reflected and reproduced in a shared language, such as SMS codes, which is a prominent indicator of youth mobile culture in all three regions we examined. Such a collective identity does not suppress personal identity, but affirms it. At times, this kind of community, such as the Generation Txt in the Philippines or youth groups in the anti-globalization movement, may be instantly mobilized as forces for social change.

In addition to the above characteristic constants, we can also see a few variables in the formations of the mobile youth culture by comparing and looking inside Europe, the US, and the Asian Pacific. This dimension of research, however, remains to be strengthened with more empirical data to be analyzed under the framework of network society:

1. The emergence of mobile youth culture is influenced by the positioning of youth in the mobile phone market. Although in most countries young people are among the most prominent users, the market situation varies especially with regard to the willingness and actual strategies of mobile operators to meet the needs of youth groups. The market setup may influence not only the diffusion rate among youth but also the actual processes of appropriation, among

teenagers, college students, or young professionals, who would use one type of service or another to attain different goals.

2. The purchasing power of youth is another important variable as we have seen young people at different social strata are adopting the technology, which seems to be associated with different patterns of usage and different kinds of networked sociability. This is why American children download so many games with the cell phone, whereas young migrant workers in China stick to SMS. It is, however, not yet clear though how youth groups operating with lower budget differ from those with higher purchasing power with regard to their basic values, attitudes and norms.
3. The last and least researched variable is the extent to which existing youth cultures and subcultures of different societies are shaping the mobile youth culture. This would be an important question given our initial hypothesis regarding the cross-cultural significance of the phenomenon. But it is a question rarely raised in existing research. Although we know, for example, the *kogyaru* subculture among Japanese schoolgirls, in-depth analysis about the social shaping of mobile phone usage in similar groups is largely lacking at the present stage.

SECTION 5

**WIRELESS COMMUNICATION AND SOCIO-POLITICAL MOBILIZATION:
CASE STUDIES**

Wireless communication provides a powerful platform for political autonomy on the basis of independent channels of autonomous communication, from person to person. The communication networks that are enacted by mobile telephony can be formed and reformed instantly, and messages are received from a known source, enhancing their credibility. The networking logic of the communication process makes it a high volume communication channel, but with a considerable degree of personalization and interactivity. In this sense, the wide availability of individually controlled wireless communication effectively bypasses the mass media system as a source of information, and creates a new form of public space. Without prejudging on the goodness of this political autonomy (because, naturally, it can be used to support very different kinds of political values and interests) we have observed a growing tendency by people in different contexts, to use wireless communication to voice their discontent with the powers that be, and to mobilize around these protests by inducing "flash mobilizations" that in a number of instances have made a considerable impact on formal politics and government decisions. To illustrate this tendency, in this section, we will examine four examples of political mobilization in which wireless communication played a significant role. These are the ousting of President Estrada in the Philippines in 2001, the voting into power of Korean President Moo-Hyun in 2002, the electoral defeat of the Spanish Partido Popular in 2004 and the organization of a series of protests during the U.S. Republican Party's national convention in 2004. At the end, we will also briefly discuss the low level of socio-political uses among mobile subscribers in Japan and especially in China during the SARS epidemic of 2003, which shows the importance of existing political frameworks and institutions.

5.1. PEOPLE POWER II IN THE PHILIPPINES

In January 2001 thousands of cell-phone touting Filipinos took part in massive demonstrations now dubbed "People Power II" (following the original People Power Movement that overthrew Ferdinand and Imelda Marcos in 1986). This four-day event has become a legendary as the first time in human history that the mobile phone played an instrumental role in removing the sitting president of a nation-state.⁶⁹¹

June 30th, 1998, Joseph Estrada was sworn in as the 13th President of the Philippines. Son of an engineer in Manila, he dropped out of college at age 21 to become an actor, a profession that so

⁶⁹¹ Bagalawis (2001). See also Salterio (2001, p. 25).

deeply troubled his parents that they forbade him to use his family name, Ejercito. He thus adopted the screen name “Estrada” (meaning “street” in Spanish), and the nickname “Erap” (or “Pare,” meaning “friend,” spelt backwards) that he continued to use in later political life. During his movie career, Estrada played the lead role in more than 100 films and produced more than 70, most of which were popular action and comedy movies that brought him huge fame. In 1969, he started to serve in the public sector first as mayor for 16 years, then as senator and vice-president. As a politician, he continued his on-screen Robin Hood-style image as the friend of the poor, especially low-income Filipino farmers.⁶⁹² With their strong support, he won by a landslide victory of 10.7 million votes in the presidential election of 1998.⁶⁹³

But since the beginning of his presidency, Estrada was subject to allegations of corruption including mishandling of public funds, accepting bribery, and using illegal income to buy houses for his mistresses. The most serious charge that led to his oust came in October, 2000, when he was accused of receiving \$80 million from a gambling-payoff scheme and several more million from tobacco tax kickbacks. On October 12th, Vice President Gloria Macapagal Arroyo, a Harvard-trained economist and the daughter of former president Diosdado Macapagal, resigned from the Cabinet and later become the leader of what would soon become People Power II.⁶⁹⁴

October 18th, 2000, opposition groups filed an impeachment complaint against Estrada with House Representative. Protests started to emerge in Manila. In less than a month, dozens of senior officials and lawmakers from Estrada’s ruling party withdrew their support including both the Senate president and House speaker. On December 7th, the Senate impeachment trial formally began. Multiple investigations took place, revealing more and more evidence to the disadvantage of Estrada.

Soon, a violent disaster disrupted the political life of entire country. On December 30th, 2000, one day before the New Year Eve, five bombs exploded in Manila, killing 22, injuring more than 120.⁶⁹⁵ The explosions were synchronized to hit the city’s crowded public spaces including the airport, a light-rail train, a bus, a gas station, and a park near the US embassy.⁶⁹⁶ Police investigation accused the

⁶⁹² “Estrada’s fall from hero to villan,” BBC.

⁶⁹³ Lopez (1998).

⁶⁹⁴ “President for impeachment, anyone?” *Pamantalaang Mindanaw*.

⁶⁹⁵ “Estrada suspends talks with MLF,” *Philippine Daily Inquirer*.

⁶⁹⁶ “Manila on alert after blasts,” Reuters.

Muslim rebel group, Jemaah Islamiyah, which was later linked to Al-Qaida,⁶⁹⁷ although many suspected at the time that the explosions were linked to Estrada's impeachment trial.

January 16th, 2001, at a critical meeting for the trial, senators voted 11-10 to reject the opening of an envelope that was believed to contain records of Estrada's secret transactions. Within hours, enraged Manila residents – many of them following instructions received on their cell phones – gathered in the historic Shrine at Epifanio de los Santos Avenue, also known as EDSA, the site for the People Power revolt of 1986, to protest against perceived injustice and demand the immediate removal of Estrada from the presidency.

The massive demonstrations of People Power II lasted for four days, from the 16th to the 20th of January. The group of senator-judges serving at the impeachment trial resigned on the 17th and the case was suspended indefinitely. With increasing pressure from protesters led by Gloria Arroyo and other former officials, the Defense Secretary and Finance Secretary resigned on the 19th to join the opposition. By then, the Estrada Cabinet had basically collapsed with most of its key posts being abandoned, and most importantly, the military had sided with demonstrators. January 20, 2001, Estrada was escorted out of the Malacanang Palace by the Armed Forces Chief of Staff and Vice Chief of Staff. By the end of the day, the Supreme Court would declare the presidency vacant, Gloria Arroyo was sworn in, and People Power II was concluded with a triumphant note.

News coverage of the demonstrations invariably highlights the role of new communication technologies, especially SMS and the Internet, in facilitating and enabling the protests. By one account, anti-Estrada information started to accumulate in online forums as soon as he took office in 1998, which culminated into some 200 Web sites and about 100 email discussion groups by the time People Power II started.⁶⁹⁸ A most famous online forum is E-Lagda.com, which collected 91,000 e-signatures to support the impeachment through both the Internet and SMS.⁶⁹⁹ Besides pure information, a large number of Internet and text messages were jokes and satires making fun of Estrada, his (allegedly) corrupted life, and his poor English.

While this kind of semi-serious communication continued for more than two years, allowing for the expression and widespread of discontent, it was texting that made possible the swift gathering of tens

⁶⁹⁷ "Terror attacks believed linked to al-Qaida," The Associated Press.

⁶⁹⁸ Pabico (undated).

⁶⁹⁹ Bagalawis (2001)

of thousands immediately after the crucial voting result of January 16th. According to a member of the Generation Txt who joined the demonstrations, she was out on a date in the evening when the news broke.⁷⁰⁰ She first received a message from her best friend: “I THINK UD BETR GO HME NW (I think you’d better go home now).” But by the time she got home, already pretty late in the evening, she received numerous messages from others such as: “NOISE BARRAGE AT 11PM”, “GO 2 EDSA, WEAR BLACK 2 MOURN D DEATH F DEMOCRACY.” She then quickly followed the instructions:

I barely had time to kick off my high heels and slip on my sneakers when my mom, brother, and I jumped into the car and joined the cars in our neighborhood in honking horns in protest. And then to Edsa we went. At midnight, there were a couple of hundred people. Families clad in pajamas, teenagers in party clothes, men and women in suits fresh from happy hour, college students clutching books obviously coming from a study group, nuns and priests.

During the week of People Power II, Smart Communications Inc. transmitted 70 million text messages, and Globe Telecom, the other main SMS operator, handled 45 million messages each day as opposed to its normal daily average of 24.7 million.⁷⁰¹ The demonstrators were using text messages so actively that it caused serious strain to the networks covering Edsa. According to Smart’s public affairs officer, “The sudden increase in the volume of messages being handled at that time was so tremendous that sometimes the signals were not coming through, especially in the Edsa area.” High-level representatives from Globe admitted similar difficulty, saying that mobile cell sites had to be transferred from the Senate and rural Bicol to ease equipment load, alleviate congestion, and provide back-up contingency.⁷⁰²

Most English-language Filipino media regard the overthrow of Estrada a positive development in the country’s democratic life. Comparing People Power II and the People Power movement of 1986, they argue that there was less violence and military involvement;⁷⁰³ that the demonstration was more centered on information and IT. “[T]he wired and wireless media became effective messengers of information – be it jokes, rumors, petitions, angry e-mails or factoids – that made People Power II

⁷⁰⁰ Uy-Tioco (2003, pp. 1-2)

⁷⁰¹ Bagalawis (2001)

⁷⁰² Bagalawis (2001)

⁷⁰³ Andrade-Jimenez (2001).

much wider in scope and broader in reach than its predecessor.”⁷⁰⁴ Moreover, the speed of IT-based mobilization was much faster. Whereas Marcos managed to continue his rule for almost two decades despite serious allegations of corruption and human rights violation, Estrada was ousted only in two and a half years, less than half of his six-year presidency.⁷⁰⁵ For these above reasons, Helen Andrade-Jimenez claimed that, “People Power II showed the power of the Internet and mobile communications technology – not to mention broadcast media – not only to shape public opinion but also to mobilize civil society when push came to a shove.”⁷⁰⁶ According to these descriptions, the victory of People Power II was the victory of new technologies, especially the mobile phone and the Internet.

These media accounts, however, need to be treated with caution. After all, “[n]early all the accounts of People Power II available to us come from middle-class writers or by way of a middle-class controlled media with strong nationalist sentiments.”⁷⁰⁷ Written in the immediate aftermath of the protests, most writings are excessively celebratory, glossing over many issues important to our understanding of the role of mobile phone in this political movement.

First, characterizing People Power II as non-violent and information-centered oversimplifies the case. The military was never a non-factor in the process. It was only after the armed forces sided with the protestors that Estrada retreated and was “escorted” out of his presidential palace by military commanders. Moreover, the deadly synchronized explosions that killed 22 Manila residents and injured more than 120 took place only 17 days before People Power II. Given the sensitive timing in the middle of the impeachment trial, such a violent incident clearly threatened everyone – especially those in senator-judges – with an all-out civil war on top of the on-going clashes with Muslim rebels accused of the December 30 bombing. This was quite possible because, despite the corruption charges, Estrada had overwhelming support in the countryside and among the poor, as shown in his landslide victory in the 1998 election. In fact, a seldom-told story was that, three months after People Power II, on April 25, 2001, Estrada was formally arrested on charges of graft and corruption. This incident quickly spurred “a crowd of perhaps one hundred thousand formed at EDSA and demanded Estrada’s release and reinstatement.”⁷⁰⁸ According to Vicente Rafael:⁷⁰⁹

⁷⁰⁴ Bagalawis (2001)

⁷⁰⁵ Andrade-Jimenez (2001); Pabico (undated).

⁷⁰⁶ Andrade-Jimenez (2001).

⁷⁰⁷ Rafael (2003, p. 401).

⁷⁰⁸ Ibid, p. 422.

⁷⁰⁹ Ibid.

Unlike those who had gathered there during People Power II, the crowd in what came to be billed as the “Poor People Power” was trucked in by Estrada’s political operatives from the slums and nearby provinces and provided with money, food, and, on at least certain occasions, alcohol. In place of cell phones, many reportedly were armed with slingshots, homemade guns, knives, and steel pipes. English-language news reports described this crowd as unruly and uncivilized and castigated protestors for strewing garbage on the Edsa Shrine, harassing reporters, and publicly urinating near the giant statue of the Virgin Mary of Edsa.

Besides showing the potentiality of large-scale violence during the impeachment trial, the Poor People Power calls into question the proclaimed importance of new media because, although most poor demonstrators did not have cell phone (let alone Internet access), this particular crowd could also appear in no time.⁷¹⁰ They had to be “trucked in” since unlike the middle-class protestors they had no other means of transportation (see earlier quote from Uy-Tioco for the usage of private cars in People Power II). Meanwhile, as Rafael pointed out, the negative descriptions of the Poor People Power was in part due to the class positioning of Filipino English-language newspapers.⁷¹¹

Other accounts qualified these depictions by pointing out that many in the crowd (of Poor People Power) were not merely hired thugs or demented loyalists (of Estrada) but poor people who had legitimate complaints. They had been largely ignored by the elite politicians, the Catholic Church hierarchy, the middle-class-dominated left-wing groups, and the NGOs. Even though Estrada manipulated them, the protestors saw their ex-president as a patron who had given them hope by way of occasional handouts and who addressed them in their vernacular. ... Generation Txt spoke of democratization, accountability, and civil society; the “*tsingelas* crowd,” so called because of the cheap rubber slippers many protestors wore, was fixated on its “idol,” Estrada.

⁷¹⁰ It is unclear though to what extent the organizers of Poor People Power, the “political operatives” of Estrada, were relying on mobile phones at the time.

⁷¹¹ Ibid, pp. 422-423.

The Poor People Power was finally dispersed by the military after five days of gathering.⁷¹² This incident, seldom incorporated in the narrative of People Power II, shows the oversimplifying nature of the “People Power” label with respect to the deep-seated class problems in the Philippines that offer more fundamental explanations for the social unrest above and beyond the over-celebrated power of new media in and of themselves. Almost 40 percent of Filipinos lives on a US\$1 daily income.⁷¹³ Given the country’s total population of 80 million,⁷¹⁴ only about 13.8 percent of Filipinos had access to mobile phones in 2001. The scope of cell phone’s political influence was therefore still quite limited. Although some members of the lower class also took part in People Power II, they were, like the “*tsingelas* crowd,” presumed to be “voiceless” in the “telecommunicative fantasies” about the cell phone.⁷¹⁵

The contradiction of class interests was most acutely presented in a book called “Power Grab,”⁷¹⁶ whose summary was prominently featured on Estrada’s official website, www.erap.com (accessed on June 3, 2004). It maintains that:

[Estrada] lost his job when white-collar mobsters and plunderers, backed by seditious communists, do-gooder prelates, traditional politicians, and misguided police and military generals, banded together and toppled his regime, first, by using massive disinformation and black propaganda carefully crafted to provide half-true, misleading, or wholly false information to deceive and anger the public.

Putting aside the highly partisan language, this pro-Estrada writer obviously agrees that communication technologies played a pivotal role, not to inform and mobilize in a positive sense though, but to disseminate “disinformation,” “to deceive and anger the public,” and to “misguide” police and military generals. The question that emerges is, given that Estrada was the sitting president, why he did not prevent the “disinformation” and vicious mobilization against himself? How could this be possible? Is it simply due to the invincibility of new technology since “one could imagine each user becoming his or her own broadcasting station: a node in a wider network of

⁷¹² Ibid, p. 425.

⁷¹³ Bociurkiw (2001).

⁷¹⁴ National Statistical Coordination Board, the Philippines. See figure at <http://www.nscb.gov.ph/sna/2002/4q-2002/2002per4.asp> (accessed on June 12, 2004).

⁷¹⁵ Rafael (2003, p. 400).

⁷¹⁶ Arillo (2003).

communication that the state could not possibly monitor, much less control”⁷¹⁷ More likely, as Rafael argues, the power of new technologies, especially of cell phone was because there was a need for “the power to overcome the crowded conditions and congested surroundings brought about by state’s inability to order everyday life.”⁷¹⁸ In another word, the existence of a relatively weak state was a prior condition for the key role of mobile phone and Internet in this case. The final result might have been very different, if there were stronger state control. Although there was indication that the Estrada attempted to acquire technologies for monitoring cell phone use, “[i]t is doubtful, however, that cell phone surveillance technology was available to the Estrada administration.”⁷¹⁹ Besides problems in technologies, this probably also has to do with Estrada’s life first as a successful movie star (therefore overconfident about his image built by film, TV, and radio), then as a long-time, small-town politician (therefore less prepared for the communication power of new media in Manila).⁷²⁰

It also has to be pointed out that there were other social forces playing critical roles, especially the Catholic Church, and the radio and other media resources under their influence. A Catholic nun was among the first to openly accuse Estrada’s family of mishandling public funds.⁷²¹ Cardinal Sin, the head of Roman Catholic Church in the Philippines was among the most prominent anti-Estrada leaders since the beginning of the events in October 2000.⁷²² Moreover, while many were suspicious of the credibility of SMS messages because so many of them were ungrounded rumors, religious organizations were deliberately involved to add legitimacy to anti-Estrada text messages. As one activist reveals in a listserv post:

I was certain [texting] would not be taken seriously unless it was backed up by some kind of authority figure to give it some sort of legitimacy. A priest who was with us suggested that [the church-owned broadcasting station] Radio Veritas should get involved in disseminating the particulars ... We [then] formulated a test message ... and sent it out that night and I turned off my phone ... By the time I turned it on in the

⁷¹⁷ Rafael (2003, p. 403).

⁷¹⁸ Ibid.

⁷¹⁹ Ibid. In 2000 and 2001, even if there were mobile phone surveillance systems, they must have been still too primitive to be used during large-scale political movements such as People Power II.

⁷²⁰ Pabico (undated).

⁷²¹ Uy-Tioco (2003, p. 9).

⁷²² “Cardinal Sin tells Estrada to quit,” BBC. See also Gaspar (2001).

morning, the message had come back to me three times. ... I am now a firm believer in the power of the text!⁷²³

As mentioned earlier, mobile phones also work closely with hundreds of anti-Estrada websites and listservs during the movement. In addition to famous online forums such as E-Lagda.com, blogging sites were also involved such as “The Secret Diary of Erap Estrada (erap.blogspot.com).”⁷²⁴ It is thus erroneous to give all the credit to texting since mobile phones had to function in this particular media environment, which reflected the middle-class dominated power structure at the time. It is under this larger framework that we shall acknowledge that the mobile phone – as a medium that is portable, personal, and prepared to receive and deliver messages anytime, anywhere – can perform the mobilization function much more efficiently than other communication channels at the tipping point of a political movement.

On the other hand, as a tool of political communication, texting has a serious limitation: it allows short messages to be copied and distributed quickly and widely, but it permits very little editing or elaboration based on the original message. It is suited for simple coordinating messages such as specifying the time and location of gathering and what to wear (e.g., black clothes in this case). However it is highly insufficient for civic deliberation. With SMS, the messages were “mechanically augmented but semantically unaltered ... producing a ‘technological revolution’ that sets the question of social revolution aside.”⁷²⁵ “Texting is thus ‘revolutionary’ in a reformist sense.”⁷²⁶ If a real revolution were to take place that fundamentally alters a social structure, it would most likely involve other media, including not only Internet that has been accompanying cell phone in political mobilizations in most cases, but also traditional mass media and interpersonal communication.

Finally, there was a global dimension of People Power II. New media technologies, especially Internet, enabled the global Filipino diaspora to participate more easily.⁷²⁷ Since overseas Filipinos are more sympathetic toward middle-class appeals, they added significantly to the oppositional force. Moreover, Estrada has been an outspoken nationalist for most of his political life. He was named the Most Outstanding Mayor and Foremost Nationalist in 1972.⁷²⁸ In 1991, he was the first Senator to

⁷²³ As quoted in Rafael (2003, p. 408).

⁷²⁴ Andrade-Jimenez (2001)

⁷²⁵ Rafael (2003, pp. 409-410).

⁷²⁶ Ibid, p. 410.

⁷²⁷ Andrade-Jimenez (2001).

⁷²⁸ Alfredson and Vigilant (2001).

propose the termination of American military base in the Philippines. He therefore had little support from global capital or the US government, which would rather watch him being replaced by Gloria Arroyo who was more westernized and representing middle-class interests.

To sum up, during People Power II, the mobile phone, and especially text messaging, did play a major role in message dissemination, political mobilization, and the coordination of campaign logistics. Because it allows instant communication at any time, anywhere, it is most suited to assemble large-scale demonstrations immediately after emergent political events such as the Senators' decision on the impeachment trial on January 16th, 2001 (similar to events during the Korean presidential election of 2002). However, the mobile phone was limited in the social scope of its influence due to the digital divide. It is oftentimes a tool serving the interests of the middle class, traditional stakeholders (e.g., the Catholic Church), and global capital. It does not always have high credibility or sufficient capacity to spur two-way civic deliberation. For these reasons, mobile phones and texting have to work closely with other media, such as Internet and radio as shown in this case, in order to deliver actual political consequences.

5.2. WIRELESS COMMUNICATION AND THE "PEOPLE WHO LOVE ROH" IN SOUTH KOREA

On December 19, 2002, South Korea elected its new president Roh Moo-Hyun, whose victory has been widely attributed in a major part to the Nosamo, an online supporter group known by this Korean acronym for "People who Love Roh." The success of Roh, and of Nosamo, is now "a textbook example for the power of IT"⁷²⁹ with a combination of Internet and mobile phone-based communication being systematically utilized. While the Internet-based campaign had lasted for years providing the core political networks, it was the mobile phones that mobilized large number of young voters on the Election Day and finally reversed the voting result.⁷³⁰

The Nosamo is not a random phenomenon. It is rather a strategic coalition between liberal pro-reform political forces and new communication technologies in response to pressing issues such as economic growth and the problem of regionalism. Based on the nation's high Internet and mobile phone penetration rates, it also draws on the historical roots of pro-democracy student demonstrations of the

⁷²⁹ Hachigian and Wu (2003, p. 68).

⁷³⁰ Fulford (2003, p. 92). See also, Kim S.-D. (undated).

1980s.⁷³¹ This is a very sensible strategy given that traditional media, especially newspapers, are dominantly conservative.⁷³² These “old” media appealed little to young people in their 20s and 30s; yet this age group is a baby-boom generation that makes up slightly more than half the total number of voters.⁷³³

A self-educated labor lawyer, Roh Moo-Hyun assumed the presidency at rather young age of 56. He differed from most other politicians with a more radical reformist agenda that, on the one hand, favored a fundamental overhaul of *chaebols*, the family-dominated conglomerates that “have long funded the country’s political machinery,”⁷³⁴ while on the other hand attempting to transcend the boundaries of regionalism, a deeply stemmed structural problem in Korean politics.⁷³⁵ In addition to these singular political stances, Roh was also known for his highly idealistic personality⁷³⁶ because, despite repetitive losses in elections (for the mayor of Pusan and then the national assembly), he refused to compromise or switch parties as many other opposition figures did. This iconoclastic image won him “an almost cult-like following among young Koreans.”⁷³⁷

Roh’s age, policy, and personality gave him strong popularity among young voters “just as President Bill Clinton appealed to many American baby boomers.”⁷³⁸ At the core of his supporters is the generation of the so-called “386ers,” i.e. those who were in their 30s during the presidential election, who grew up in the 80s amid Korea’s pro-democracy movement, and were born in the 60s at the dawn of South Korea’s industrialization era.⁷³⁹ Unlike the older generations, the 386ers are “more skeptical of the U.S. in part because Washington backed the same military rulers they fought against as college students.”⁷⁴⁰ In addition, there were also large number of younger supporters in their 20s such as Hwang Myong-Pil, a stock trader who quitted his well-paying job to become a full-time volunteer at Nosamo.⁷⁴¹ Together, the 20- and 30-somethings, were Korea’s baby boomer generation accounting for slightly more than half of the voter population.⁷⁴² Most of these young activists regarded themselves as having inherited the revolutionary spirit of student demonstrations from more

⁷³¹ Fairclough (2004). Also see Kim, J.-M. (2001. p. 49).

⁷³² Kim, S.-D. (undated).

⁷³³ Kim, J.-M. (2001); Rhee (2003).

⁷³⁴ Fairclough (2004).

⁷³⁵ Rhee (2003, p. 95).

⁷³⁶ For this, some analysts would even characterize him as “unrealistic, foolhardy” (Rhee, 2003, p. 95).

⁷³⁷ Demick (2003).

⁷³⁸ Fairclough (2004).

⁷³⁹ Ibid.

⁷⁴⁰ Ibid.

⁷⁴¹ Demick (2003)

⁷⁴² Kim, J.-M. (2001); Rhee (2003).

than a decade ago. At large political gatherings, they would chant songs dating back to the pro-democracy movement of the 80s such as “Morning Dew.”⁷⁴³

To reach this critical block of voters, Roh experimented with online campaigns back in 1995 when he was running for the mayor of Pusan. It “fits in with his political philosophy of openness and direct communication with the people.”⁷⁴⁴ Many of his closest aides in the presidential election were former student activists.⁷⁴⁵ This was a highly innovative approach not only because it used new technology. It also appealed to the younger generations in a more substantial way because traditional media, as part of the Korean political machine, was predominantly conservative. Consequently, young people had been feeling cynical and disenfranchised in the political process: “Nearly a third of the nation’s twenty-somethings didn’t bother to vote in the 1997 presidential election. Less than 40 per cent of the 8 million people in their twenties voted in parliamentary elections in April last year (2000), far below the 57 percent national average.”⁷⁴⁶

It was at this historic moment of low turnout among young people, when Roh Moo-Hyun lost his second race in the parliamentary election, that the Nosamo (www.nosamo.org) came into being. On June 6, 2000, Nosamo was formed with around 100 founding members convening in Taejon.⁷⁴⁷ While Roh’s campaign team had been actively utilizing the new media, the Nosamo was a voluntary organization self-funded by membership fees and only informally affiliated with Roh.⁷⁴⁸ Within five months, the membership mushroomed from around 100 to nearly 5,000 in November 2001,⁷⁴⁹ and then, within a year, to 70,000 – 80,000 by the end of 2002, forming a most formidable political force.⁷⁵⁰

During the presidential election of 2002, Nosamo members raised more than \$7 million over the Internet.⁷⁵¹ They used electronic bulletins, online polls, and text messages to formulate collective decisions and coordinate campaign activities. “All the decisions about their activities are made through an electronic voting system and the final decision-making online committee has its monthly

⁷⁴³ “Victory for ‘Nosamo,’ makers of president,” *Korea Times*.

⁷⁴⁴ Min-Kyung Bae, head of the Cyber Culture Research Association in Seoul, quoted in Demick (2003).

⁷⁴⁵ Fairclough (2004).

⁷⁴⁶ Kim, J.-M. (2001, p. 49).

⁷⁴⁷ “Victory for ‘Nosamo,’ makers of president,” *Korea Times*.

⁷⁴⁸ Ibid. See also, Rhee (2003, p. 95).

⁷⁴⁹ Kim, J.-M. (2001, p. 50).

⁷⁵⁰ The estimates of Nosamo members vary from 70,000 (“Victory for ‘Nosamo,’ makers of president,” *Korea Times*) to 80,000 (Demick, 2003).

⁷⁵¹ Demick (2003).

meeting in chat rooms.”⁷⁵² Among a variety of logistics, one coordination task was to make sure that people wore yellow outfits to attend political rallies, yellow being the color symbolizing Roh’s campaign.⁷⁵³

At times, members of Nosamo could act quite aggressively. For instance, a professor made a comment perceived to be critical of Roh supporters on a television talk show. He was subject to hundreds of angry e-mails and was widely lambasted in the Nosamo forum.⁷⁵⁴ For this and similar activities, Nosamo was criticized for behaving like “Internet Red Guards” with “violent words in cyberspace and an appeal to populism.”⁷⁵⁵ About a month before the presidential election, South Korea’s election commission barred the group from raising money for the candidate,⁷⁵⁶ and the organization’s website was forced to close until the Election Day.⁷⁵⁷

Meanwhile, the rather unconventional approaches of Roh Moo-Hyun continued to work to his deficits. Mainstream media, most of which belonged to the conservative camp, kept putting him in a negative frame.⁷⁵⁸ A few months before the election, Roh was so far down in opinion polls that members of his own Millennium Democratic Party (or MDP) tried to force him out of the race.⁷⁵⁹ At the eve of election, Roh’s key campaign partner, the multimillionaire Chung Mong-Joon suddenly withdrew his support, dealing a heavy blow on the entire campaign in the last minute.⁷⁶⁰

As the day broke for election on December 19, 2002, Nosamo members were caught in a deep sense of crisis. With their main website being closed for a month until election eve, young activists started the day by posting online messages such as “Let’s go vote!”⁷⁶¹ By 11 a.m., exit polls showed that Roh was losing by a margin of one to two percent.⁷⁶² At mid-day, “[h]is supporters hit the chat rooms to drum up support. Within minutes more than 800,000 e-mails were sent to mobile phones to urge

⁷⁵² Kim, J.-M. (2001, p. 50).

⁷⁵³ “Victory for ‘Nosamo,’ makers of president,” *Korea Times*.

⁷⁵⁴ Demick (2003).

⁷⁵⁵ Ibid.

⁷⁵⁶ Ibid.

⁷⁵⁷ “Victory for ‘Nosamo,’ makers of president,” *Korea Times*.

⁷⁵⁸ Rhee (2003); Kim S.-D. (undated).

⁷⁵⁹ Demick (2003).

⁷⁶⁰ “Victory for ‘Nosamo,’ makers of president,” *Korea Times*.

⁷⁶¹ Rhee (2003, p. 96). It is, however, difficult to find other actual mobilization short messages in primary and secondary sources, which is rather different from news accounts on the People Power II movement in the Philippines.

⁷⁶² Fulford (2003); Rhee (2003, p. 96).

supporters to go out and vote. Traditionally apathetic young voters surged to the polls, and by 2 p.m., Roh took the lead and went on to win the election.”⁷⁶³

Several elements contributed to this historical event when mobile phones for the first time played a significant part in changing the outcome of a presidential election. First, there was already a large-scale grassroots political network centered on the Nosamo, whose members not only had frequent online exchanges but also meet offline. Second, Roh Moo-Hyun’s center-left policies and iconoclast image energized young liberals, many of whom were highly devoted and ready to act promptly at time of crisis. Third, Chung Mong-Joon’s sudden withdrawal at election eve and the temporary trailing of Roh created an urgent momentum to rally public support. And the mobile phone – the quintessential grassroots communication gadget that is always on, “anywhere, anytime,” – turned out to be the best medium for these rallying calls. Given the strength of youth networks⁷⁶⁴ and the demographic fact that people in their 20s and 30s makes up slightly more than half the total number of voters,⁷⁶⁵ young people mobilized through mobile messages became a most decisive voting bloc. At the end of the day, “sixty percent of voters in their 20s and 30s cast ballots for Roh.”⁷⁶⁶

After President Roh took office, the Nosamo decided to remain active following an internal poll in January 2003.⁷⁶⁷ Nosamo members continued to “solicit suggestions for appointees to Cabinet positions and engage in debates over topics ranging from North Korea’s nuclear program to whether it would be more appropriate for Roh to take up golf or jogging as president.”⁷⁶⁸ In fact, as any long-term civic group, they played a relatively independent watchdog role in observing, and sometimes criticizing, Roh’s decisions as the president. Back in 2001, a founding member of Nosamo was quoted saying that “We’re using the Net to support him. But we want to say ‘no’ when he makes any decision which we think is wrong.”⁷⁶⁹ On March 24, 2003, Nosamo adopted a statement opposing the U.S.-led war in Iraq and the decision of Seoul to dispatch engineering and medical troop there.⁷⁷⁰ Yet the Roh Administration proceeded with the plan, causing some Nosamo members to withdraw from the group, one of them saying, “I withdrew from Nosamo because President Roh Moo-Hyun has shown us drastically different aspects since becoming president. I do not love Roh Moo-Hyun

⁷⁶³ Fulford (2003).

⁷⁶⁴ Yoon (2003a); (2003b).

⁷⁶⁵ Kim, J.-M. (2001, p. 49).

⁷⁶⁶ Rhee (2003, p. 95).

⁷⁶⁷ “Roh’s support group decides not to disband,” *The Korea Herald*.

⁷⁶⁸ Demick (2003).

⁷⁶⁹ Kim, J.-M. (2001, p. 50).

⁷⁷⁰ “Nosamo opposes assistance to Iraq War,” *Korea Times*.

anymore. I hate the sight of the president supporting the barbaric war of the United States killing innocent civilians of Iraq.”⁷⁷¹

In spring 2004, the Nosamo again played a major role in staging support for Roh during an impeachment investigation against him on charges of violating Korean laws barring partisan remarks within 17 days before the parliamentary election.⁷⁷² During this election, the liberal Uri Party, which has Roh’s support, utilized mobile phone for campaigning purposes. Along with the usual policy statements, candidate profiles, and appearance schedules, their website also encouraged supporters to copy “Get out and vote” messages and send them out by mobile phone to 10 friends who are then, in turn, asked to forward the message to 10 of their friends.⁷⁷³

The socio-political uses of mobile phone are still on the rise as the Korean society further transforms and the technology further diffuses and becomes more mature. Again, the pattern we see in this case is that the role of the mobile has to be understood as closely related to other media, especially online BBS. These new media function most importantly as a catalyst for the mobilization of existing youth networks, giving rise to groups such as the Nosamo that are, in one sense, newly formed political forces, whose historical origins, however, can be traced back for at least two decades. This said, it would be exaggerative to attribute too much credit to mobile phone as the sole or even the most important device with some kind of magical, innate political power. Yet it would be equally erroneous to ignore the unique capacity of cellular phone – as a gadget of “perpetual contact” – in the swift mobilization of certain marginalized social groups at critical political moments such as the Korean presidential election of 2002.

5.3. TERRORISM, POLITICAL MANIPULATION, POLITICAL PROTEST, AND POLITICAL CHANGE: SPAIN, MARCH 2004

On March 11th, 2004, a Madrid-based, mainly Moroccan, radical Islamic group associated with Al Qaeda conducted in Madrid the largest terrorist attack in Europe, bombing 3 suburban trains, killing 199 people and wounding over 1,000. The bombing was conducted by remote control-activated cell phones. Indeed, it was the discovery of a cell phone calling card in an unexploded bag that led to the

⁷⁷¹ Ibid.

⁷⁷² Len (2004).

⁷⁷³ Salmon (2004).

arrest and subsequent elimination of the phone. Al Qaeda took responsibility for the bombing later that evening. The attack took place in a very special political context, four days before the Spanish parliamentary elections, which were dominated by the debate on the participation of Spain in the Iraq war, a policy opposed by the vast majority of the citizens. Yet, the conservative party, Partido Popular (PP), was considered the likely winner of the election, based on its record on economic policy and its stand on Basque terrorism.

As soon as the Madrid terror attack occurred, and before any evidence surfaced, the PP Government stated with total conviction that the Basque terrorist group, ETA was behind the bombing. As the hours went by, it became increasingly likely that Al Qaeda was the culprit. Yet, the Minister of Interior, and the government's spokesman continued to insist on ETA's responsibility until the 13th in the evening. In political terms, making the Basque terrorist responsible would favor the PP in the elections, while acknowledging the action as that of Islamic terrorists would indicate to Spaniards the high price they were paying for their government's policy in Iraq, thus potentially inciting them to vote against the government. In the minds of millions of Spaniards (actually 67% of them) the government was manipulating information about the attack, seeking political advantage. This widespread feeling was an important factor in the unexpected political defeat of the PP on March 14th, leading to the election of a Socialist government and to the immediate withdrawal of Spanish troops from Iraq.

Concerning the actual events of March 11th-14th the work of an investigative parliamentary commission produced evidence that, without actually lying, at the very least the PP government had delayed the publication of some critical information, and stated as facts elements that were still under scrutiny. There was clearly an inclination to favor the hypothesis of Basque terrorism and not to follow as priority the Islamic trail, in spite of the early leads of the police in this direction. But regardless of the extent of manipulation that actually took place, what counts is that thousands of citizens were convinced on the 12th and 13th of March of the existence of this manipulation, and that they decided to diffuse their views to the entire population through wireless communication and the Internet. Because the main television networks were under direct or indirect control of the government, they were supporting the Basque terrorist hypothesis, as did most of the radio networks (but not the largest one) and most of the print media, after the Prime minister personally called the editors of the main newspapers giving his personal word that the attack was carried out by ETA.

Thus, oppositional views on the actual source of terror had to find alternative communication channels to be heard. The use of these alternative communication channels led to mobilizations against the PP on Saturday the 13th, a “day of reflection”, when, according to the Spanish law, political demonstrations and public statements are forbidden. Yet, the action of thousands of protestors, most of them youth, made an impact on public opinion, and particularly on the two million new voters, young people who usually have a higher abstention rate or vote for minority parties, rather than for Socialists or Conservatives. In this election there were 2.5 million voters more than in the 2000 parliamentary election, and about 1 million voters switched to the Socialists seeking to punish the government both for its policy on Iraq and for its perceived manipulation of information. The Socialist party won a clear majority in an election that saw a 77% turnout. This discussion, on the basis of published reports, explores the process through which alternative communications channels were created and used efficiently.

The actual process of alternative communication started with the outpouring of emotion that surrounded the Friday 12th street demonstrations, called for by the government, with the support of all political forces. This is important: it was first in the physical gathering that people started to react and to oppose the official version of facts, independently from political parties that remained silent for the occasion. While the demonstration was called against terrorism and in support of the Constitution (an oblique reference to Basque separatism), many of the participants were displaying banners opposing the war. The demonstration was intended to mark the end of political statements, leading to the day of reflection on Saturday and to the election vote on Sunday. Yet, on Saturday morning, a number of activists, mostly individuals without current political affiliation, and independent from the mainstream parties, started to circulate text messages to the addresses programmed in their cell phones. In the messages, they denounced the manipulation of information and called for a demonstration in the afternoon (at 6 pm) in front of the headquarters of the PP in Madrid, and then in other Spanish cities. This was in fact outlawed, and naturally did not receive any support, explicit or implicit, from any party, although some of the participants in these gatherings were members of the left wing parties, particularly of the United Left (a small party in Parliament that includes the remnants of the Communist Party in Spain). But most of the activists were participants of the antiwar movement, and most of the people gathering in front of the PP headquarters were simply those reached by the network of SMSs. The earliest and most famous of these messages, all fitting within the 160 characters frame of the SMS format was the following: *“Aznar off the hook? ¿They call it day of reflection and Urdazi works? Today, 13M, 18h. PP*

headquarters, Genova street, 13. No parties. Silent for truth. Forward it! ("Pasalo!")). The reference to Urdazi must be explained: he was the notorious anchorman of the Spanish National TV, well known for his manipulation of political news (in fact, sentenced as such by the court). In the meantime, Spanish TV continued to defend the story of Basque terrorism, and the evening before the election, changed its regular programming to broadcast a documentary film on the assassination of a Socialist politician by Basque terrorists.

On Saturday, SMS traffic increased by 40% over a regular Saturday, reaching a higher volume than on a regular Monday, an all time record for these messages. The critical matter is that while most messages were very similar, the sender for each receiver was someone known, someone that had the receiver's address in his/her cell phone's address book. Thus, the network of diffusion was at the same time increasing at an exponential rate but without losing the proximity of the source, according to the well known "small worlds" phenomenon.

The Internet started earlier to become an alternative channel of communication, on the 11th particularly, but also on the 12th. On the one hand, people used the Internet to look for other sources of information, particularly from abroad. But also there were a number of initiatives, including some by journalists acting on their own, to set up a web site with information and debates from various sources.

Interestingly enough, the PP started a SMS network with a different message: "ETA are the authors of the massacre. Pasalo!". But it diffused mainly through party channels, did not reach a critical mass of known person-to-known person, and, more importantly, was not credible for the thousands of people who were already doubting the government's words.

The context provided by the mainstream media was also meaningful. Major television networks were ignored as reliable sources very soon. Newspapers, because of their hesitancy, became unreliable, although "La Vanguardia" in Barcelona, emerged on Saturday as legitimizing the version of Al Qaeda's origin of the attack. On the other hand, the major private radio network (SER), under the initiative of its journalists, immediately looked for evidence away from the Basque trail (some times too eagerly, as they diffused some inaccurate information). Yet, most of the SER's reports proved to be accurate. As a result, many people were referring to the radio (on their portable radios) as their source of information, and then interacting with SMSs and cell phones calls. Voice communication

provided direct discussion with close friends, while SMSs was used to diffuse personally crafted messages or to forward received messages that they agreed with.

Thus, the context of communication was provided by the physical gathering in the streets, at the origin of the formation of public opinion, and as a result of the process of political communication: being together in front of the PP buildings was the verification of the usefulness of the message. Then the actions in the street attracted the attention of some radio and TV networks (regional television and CNN-Spain), and ultimately forced the Minister of Interior to appear on national TV acknowledging Al Qaeda's possible role, on Saturday at 20.20 pm. Yet later on, the leading candidate of the PP also appeared on national TV denouncing the demonstrators – thus unwittingly fueling the crisis of trust that they had induced. Thus, a political communication mistake amplified the effect of the demonstrations.

The Internet was important to provide a source of information and a forum of debate in the days preceding the demonstrations. But the critical event was the Saturday 13th demonstrations, a typical flash mob phenomenon prompted by a massive network of SMSs that increased the effect of communication exponentially through inter-personal channels. These happened first in Madrid, but diffused to Barcelona, and ultimately, to all Spanish cities, because, naturally, address books in cell phones include friends and acquaintances in other cities.

This experience in Spain, coming three years after the flashmob mobilization that forced the resignation of Estrada in the Philippines, will remain a turning point in the history of political communication. Armed with their cell phones, and able to connect to the world wide web, individuals and grassroots activists are able to set up powerful, broad, personalized, instant networks of communication. Without prejudging the merits of this phenomenon (as it is subject, of course, to the diffusion of harmful, misleading information), this form of autonomous communication rings a warning bell for the control of information by governments and mainstream media.

5.4. THE MOBIL-IZATION AROUND THE REPUBLICAN NATIONAL CONVENTION IN NEW YORK

The Republican Party held its 2004 National Convention (RNC) from August 30 to September 2 amidst heightened expectations of disturbances caused by anti-bush activists. The run-up to the New York convention was characterized by reports and rumors of planned and potentially spontaneous

protests and how the police and security agencies were preparing to deal with these incidents.⁷⁷⁴ Referents were made to the battle of Seattle in 1999 when over 40,000 protesters descended on the city from all over the world to protest WTO policies, leading to scenes of violence and contributing to the breakdown of the WTO talks. What was particularly interesting about these reports was the taken-for-granted central role of wireless communication, not just in the protests but in all aspects of the convention. In the event, there were indeed several (mostly nonviolent) protests coordinated primarily via wireless communication and the Internet, leading to over 17,000 arrests. The convention itself was hardly affected by the protests apart from a few minor disruptions. In fact, President Bush experienced a bounce of two percentage points in the polls (among likely voters) after the convention.⁷⁷⁵ These events occurred too recently for any judgments to be made about their immediate or long-term impact. Preliminary examination, however, indicates that this was a case where the use of wireless communication technologies served to enhance efficiency but not to effect change.

News reports indicate that protests began as early as August 27th with the largest on August 29, a march organized by an anti-Iraq group, United for Peace and Justice. Although the police did not give an estimate of numbers, organizers of the march said there were about 500,000 people, the largest ever convention protest.⁷⁷⁶ Protesters marched past Madison Square Garden, the site of the convention, chanting anti-Bush slogans, led by prominent personalities such as Jesse Jackson and filmmaker Michael Moore. Other protests followed throughout the four days of the convention, all helped along by the use of cell phones and text messaging.

All week long, thousands of protesters in New York have deployed an amazing array of Internet and wireless gadgetry to try to outsmart police, share plans and publish ‘uncensored’ news.

Amateur journalists blurt out live reports by cell to Internet radio listeners. Activists zap text messages to armies of colleagues. Cell-phone photographers transmit images of cops videotaping protesters – scenes ignored by what they call ‘corporate media’ – to the Web for millions to see.⁷⁷⁷

⁷⁷⁴ e.g. *Associated Press*, 2004; Carpenter, 2004; Gibbs, 2004; Shachtman, 2004; Terdiman, 2004.

⁷⁷⁵ *The Economist*, 2004; Jones, 2004.

⁷⁷⁶ Hauser, 2004.

⁷⁷⁷ Becker and Port, 2004.

Wireless communication, especially text messages, featured prominently as a means of coordinating the activities of protesters and sending out alerts about on-going activities such as spontaneous gatherings or police arrests at least from the perspective of news coverage of the protests. For example, text messages were used to call a spontaneous rally on September 1 at the pier where arrested protesters were being held by the police.⁷⁷⁸ Other people used text messages to decide which protests they would attend, or to avoid “hot spots” where police brutality was taking place. Especially prominent were warning messages about where police were located and whether they were arresting protesters (See Table 18).

Table 18 Sample of RNC reports from TxtMob

15:32:02: About 100 people at war resisters vigil- ground zero, need more
 16:15:19: Half of WRL march is being detained by orange netting on Fulton btwn Church and Broadway
 17:06:57: Bryant Park near Public Library-lots of police gathering and waiting
 18:03:30: police pushing people off library steps/also police vans headed south on 5th ave from 20th st
 18:11:15: large #'s of cops headed west towards public library, scooters
 19:26:17: Pepper spray used at Herald Sqaure (33rd and 6th). About 1000 people there, traffic almost blocked
 19:51:45: union Square – medics and marching band targeted. Medic also snatched at Herald Square
 19:53:20: Union Sq. at 16th st. things arrests getting violent, people completely penned in.
 20:01:20: Video cameras needed at Irving and E16th, near Union Square.
 20:44:02: 26th and Park, spontaneous march being chased on foot by police. Arrests.
 23:27:45: Busses full arrestees are lined up on the West Side HW btwn 15&18 St waiting to enter pier 57
 23:42:46: Lots of arrestees tonight! Show them your support! Meet folks as there released @ 100 Center St.
 9am-1am

Source: Stern, R. (2004). Pro Texting. Accessed September 9, 2004 at

<http://www.newyourmetro.com/nymetro/news/rnc/9778/>

The pre-conference hype about protest activities was to some extent accurate, but also exaggerated the potential for wireless communication to cause any major upsets at the conference. For the most part, the protests were widespread but not revolutionary. This happened for a number of reasons. First, the use of wireless communication as a protest tool had been so highly anticipated that it was incorporated into the strategies of security forces. For one thing, security detail used wireless monitoring techniques themselves, such as head-mounted miniature video cameras that transmitted

⁷⁷⁸ Simon, 2004.

footage from the security personnel's location to a mobile command center.⁷⁷⁹ Security personnel also allegedly infiltrated protesters planning meetings and monitored text messaging and other communication services used by activists.⁷⁸⁰ For example, during the convention, protestors using indymedia's website to transmit messages soon realized that the "police were on to them." Thereafter, "calls for 'direct action' stayed posted only for a couple of minutes and used code words for location."⁷⁸¹

Secondly, and linked to the above point, unlike some radical protests which were generated spontaneously, such as those discussed in our other three case studies, there was a high level of central management associated with wireless uses in the RNC context. Most of the protests and protest strategies were carefully planned, some as much as a year in advance.⁷⁸² In addition, protest groups had to obtain a permit to demonstrate, of which eventually 29 were granted.⁷⁸³ The location and route of protest were mapped out in detail⁷⁸⁴ and each protest closely monitored by the police. Generally those who tried to implement protests without a permit ended up being arrested for unlawful assembly and their numbers were never large enough to change the tone of the protest environment. Although thousands of demonstrators gathered at Central Park after the August 29 march, in defiance of a court decision not to allow protests in that area, there is no indication that this gathering was of any critical significance to the progress of the convention.

Another example of central management was the use of specially tailored text messaging systems such as TxtMob (probably the most popular service used at the RNC), which was specifically designed by the Institute for applied Autonomy for use by activists to broadcast messages during the Democratic and Republican conventions, or MoPort, which allowed individuals to "moblog" by sending pictures of the protests from their mobile devices to be downloaded onto the Internet. The objective of MoPort was "to join the disparate streams into a collective reporting effort."⁷⁸⁵ It is possible that there was a need for such centrally organized services because of the lack of a common standard to allow people to send text messages to people on different phone networks. While these types of services effectively brought together communities of like-minded people for the purpose of

⁷⁷⁹ Reardon, 2004.

⁷⁸⁰ Gibbs, 2004; Gibson, 2004.

⁷⁸¹ Beck & Port, 2004.

⁷⁸² Archibold, 2003.

⁷⁸³ Archibold, 2004.

⁷⁸⁴ Clackman, 2004.

⁷⁸⁵ Dayal, 2004.

activism, they lack the character of direct person-to-person texting based on interpersonal relationships, because users have to sign up to send or receive messages through the service provider's server. Incidentally, for a period during the convention, users of TxtMob had problems receiving messages, for which the service provider gave no explanation, leading to conspiracy theories that some cell phone companies (T-Mobile and Sprint) had deliberately blocked messages. The current explanation is that this may have been the work of a spam filter that tagged messages going out from the same server to more than 100 people as spam.⁷⁸⁶ The blackout effectively shut down a flash mob organized by A31 Action coalition, partly because potential participants did not know where the starting point was although it is not clear why other forms of communication such as mobile phone calls could not supplement effectively. This illustrates the limitations of communications technology, especially centralized systems.

The energy of protests was also affected by the fact that they involved several groups with different agendas, from anti-war to animal rights to abortion rights. Admittedly the convergence of all these groups in one place against a central political institution would be a formidable force. At the same time, the single-mindedness associated with other protests that have effected immediate change was absent from these demonstrations. This can also be linked to the apparent absence of measurable goals. With the election too far away for them to galvanize action to vote against President Bush, and no chance of overturning the Republican Party's nomination of Bush as their candidate for 2004, protesters marched on such goals as challenging Bush to "chose another course" in the Iraq war (Jesse Jackson quoted by CNN, 2004) or "we want to take charge and reach the right people and influence them to go on and spread the message that this is a corrupt government."⁷⁸⁷

It seems then, that so far, the use of wireless communication has not had any significant effect on political events in the U.S. at least on the surface. Yet, social undercurrents may develop into changing people's minds and influence their political behavior. Indeed, in so far as the protesters' objective was to peacefully make their voice heard during a central political event, while avoiding clashes with the police, one can say that the protests were successful. However, we do not have evidence to claim any direct impact on the political process itself.

⁷⁸⁶ Di Justo, 2004, Lebkowsky, 2004.

⁷⁸⁷ Protester quoted by CNN, August 30, 2004.

5.5. NOTES ON CHINA AND JAPAN

Given the limited effect of mobile phone-based mobilization in the United States up to this point, there are other cases when wireless communication is not used for social mobilization such as in Japan or when initial political developments were crushed by the State such as in China. While our discussions on these two additional cases are less in-depth due to the lack of existing studies, they do demonstrate that, in line with our earlier statement, the particular usage of wireless technologies is shaped within the social context and political structures of a given society.

In Japan, despite the very high penetration of mobile phone and mobile Internet services, so far we could not identify instances of grassroots socio-political mobilization, which utilizes wireless communication, based on several months of literature search among academic and journalistic sources. The Japanese authorities did make some effort to use mobile technologies as a broadcasting system of some sort, for example, the “Lion Heart” e-newsletter from the Office of Prime Minister Junichiro Koizumi, which had 1.7 million subscribers through PCs and mobile phones by March 2004.⁷⁸⁸ At the local level, city governments such as Sagamihara in Kanagawa Prefecture, in the southern part of Tokyo, also launched an m-government experiment in April 2004 that allows users to report damage or defect they found on streets and public signs by sending pictures from their camera phones.⁷⁸⁹ These are, however, state initiatives that operate from top down rather than socio-political mobilization that starts within the networks of ordinary mobile-equipped citizens and their organizations as in the other countries we have discussed above. The lack of grassroots-level political usage among Japanese mobile subscribers is an interesting issue remains to be explored, although at this initial stage we suspect it has to do with the ultra consumerist tendency of Japan’s mobile culture and the relative inactivity of alternative political forces outside of the mainstream in general, which is a result of the larger social cultural framework for Japanese politics that go way beyond the mobile culture *per se*.

China is a more extreme case given its authoritarian political system that is fundamentally at odds with spontaneous grassroots mobilization. Hence, despite fast growth in the mobile phone market, the new technologies have so far been seldom put to socio-political uses. And, as in Japan, the few

⁷⁸⁸ “Prime Minister Koizumi’s E-mail Magazine Now in English.” PR Newswire (03/10/04) <http://www.prnewswire.co.uk/cgi/news/release?id=118889>, “Japan PM’s Million-Human E-Mail.” Wired News via Reuter (01/14/01) <http://www.wired.com/news/politics/0,1283,44528,00.html>

⁷⁸⁹ Suzuki, Atsushi. “Case study45: Sagamihara, Kanagawa Prefecture (in Japanese).” Nikkei BP Government Technology. June 21, 2004. Available: <http://premium.nikkeibp.co.jp/e-gov/case/2004case45a.shtml>

occasions are instances of state-sponsored experiments. One such instance was during the National People's Congress in March 2002, when Xinhua News Agency teamed up with China Mobile to offer the public a chance to text-message their concerns and proposals to the country's lawmakers.⁷⁹⁰ Yet there was little indication to what extent this was a successful trial particularly due to the very limited content capacity of SMS. It may be unrealistic for text messages to convey anything more than a quick request or a short complaint, not to mention any deliberation in the full sense.

Meanwhile, the Chinese authorities have been seeking to limit the uses of new communication technologies among political dissidents, including wireless technologies. The Telecom Ordinance of 2000 outlawed the transmission of harmful information via any telecom facilities.⁷⁹¹ Later known widely for its influence on the establishment of China's Internet censorship regime, this measure was initially designed, in large part, to counter the subversive potential of pagers at the time of its initial promulgation the mid 1990s. Meanwhile, it provided the legal basis for further, more specific controls over the mobile phone and SMS.

Although the Chinese authorities are stepping up their regulatory efforts, some elements of Chinese society have nonetheless started to use pagers and cell phones for alternative or even oppositional political organization. Despite the lack of systematic examination, it is likely that three social groups may have used wireless technologies to their political ends. First is the Falungong group that Beijing denounces as an "evil cult." Second, there have been constant demonstrations by laid-off urbanites or pensioners, such as the massive protests of workers in the petroleum and machinery industries in northeast China in 2002.⁷⁹² Third, in the countryside, there have also been protests against the misconduct and corruption of local officials.⁷⁹³ Some members of these movements, especially the organizers, may have used wireless technologies (especially the low-end applications such as prepaid phone cards and Little Smart) for small-scale coordination. However, this technical adoption is yet to have any significant impact upon the existing power balance because so far all these perceived challenges to the state have been kept under control at the national level despite sporadic outbursts in certain localities.

⁷⁹⁰ Zhao (forthcoming).

⁷⁹¹ Fries (2000, pp. 43-44). Also see the Ordinance at <http://www.isc.org.cn/20020417/ca38931.htm> (accessed on June 29, 2004).

⁷⁹² Eckholm (2002); "Laid off Chinese protest em masses," The Associated Press, March 18, 2002.

⁷⁹³ Duffy and Zhao (2004).

On the basis of her observations, Yuezhi Zhao concluded that, whereas there are some small-scale ICT-facilitated urban movements in China, it is unlikely that they will be connected with the country's 800 million peasants.⁷⁹⁴ Moreover, due to the privileged state of the information-haves, those who have access to the new technologies are “not necessarily the ones most ready to act upon this critical information.”⁷⁹⁵

Finally, the SARS outbreak of 2003 serves as another indication of the very limited nature of the socio-political uses of mobile phones in general, and SMS messages in particular. At the very beginning, no news media or Internet outlets reported on the epidemic. But victims and their friends and families, especially those who work in local hospitals of Guangdong, started to text-message people they know regarding this strange, deadly disease. The SMS alerts spread quickly among urban residents in Guangdong and then outside the province to reach the rest of the country. But at this time, public hygiene and propaganda authorities in Beijing decided to expel this “rumor” by launching a mass media campaign claiming that the infections were no more than another variant of pneumonia, that it was already under control, and that the public panic partially induced by text messages was groundless. This official campaign via traditional media effectively undermined earlier information disseminated via mobile phones because SMS was perceived to be a medium of lower credibility and there was no other alternative source of information. As a result, most people including experienced foreign analysts living in South China chose to believe the official version,⁷⁹⁶ just to witness in a few weeks the horror of SARS in a full swing. Given that the power of mobile phone was so inadequate for the sustenance of a non-state information system even regarding a life-and-death issue of such immediate concern, it would be much more difficult for the new technologies to be applied to other autonomous socio-political uses with any significant consequences, at least in the short run.

5.6. SUMMARY

The above cases demonstrate the multiple outcomes that the use of communication technologies can generate. In three of the cases (the Philippines, Korea and Spain) the outcome was radical and revolutionary, in so far as it affected the choice of a government. The fourth (the U.S.) had a mild

⁷⁹⁴ forthcoming, pp. 18-19.

⁷⁹⁵ Ibid, p. 20.

⁷⁹⁶ Personal communications with members of the China IT Group.

outcome, and our observations are, anyway, incomplete since we must view it as an on-going process that will culminate in the November 2004 election. In the Philippines, wireless communication was employed to oust a sitting president before his term of office ended; in South Korea, the same technologies were used to change the fortunes of a presidential contender who was trailing in the polls. For Spain, not only was text messaging used to galvanize people to vote a government out of power, but it was also used extensively to supplant, supplement and debunk government propaganda and mainstream media. In the U.S., text messaging and other wireless technologies were employed as efficiency tools to coordinate and monitor protest activities (by protesters and police) during a political convention. Finally, in Japan and China, although these two countries are right adjacent to South Korea and the Philippines, socio-political usage of mobile phones is at the minimum level despite the rapid diffusion of technology in these two countries.

A critical difference between these cases, particularly between the U.S. and the other three examples, is that while in the Philippines, Korea and Spain a combination of factors converged to stimulate spontaneous uprisings, in the U.S., the process was more centrally managed, thus removing, to some extent, the element of interpersonal communication flow based on friendship networks. Significantly, there were no surprises in the U.S. case; everyone had anticipated how wireless communication would likely be used. Conversely, in the other cases, events were less charted, less predictable and there were no effective counter-measures.

As we have already noted in the various case studies, in order not to be deterministic about the impact of new communications technologies, other communication processes and media, both wired and unwired were also important in these processes. We certainly know that revolutionary political mobilizations have occurred in countries where wireless communication was lacking. When wireless communication has the political impetus that we have seen, some or all of these other processes have been in play, including a precipitating event strong enough to arouse anger or other emotions, activist instigators, support from respected institutions such as the Church, and supplementary information from mainstream media and/or Internet sources. In addition, people involved feel that they really can bring about change and they tend to have a focused goal, which can sometimes be directly implemented through the voting process.

We have also noted that communication is a two-edged sword, and wireless communication has the ability to speed up the process of both its good and bad aspects. Speed of information flow through

interpersonal networks that has the ability to move people to act, can as easily be used to spread rumors or inaccurate information, as to spread truths. Also, in so far as there is some differentiation in the diffusion and usage patterns of wireless communication technologies amongst countries, as well as on the basis of age, gender and socio-economic status (as we have demonstrated in earlier sections of this report), the process of political mobilization using this means could be limited to some more privileged groups.

Still, it cannot be denied, based on these case studies, that access to and use of wireless communications technology adds a beneficial tool to the arsenal of those who seek to influence politics and the political process. Arguably, other media such as wired phones, radio or TV could perform some the rallying function as wireless methods, but not in as timely a manner, not with the ability to reach people wherever they are, and not free of the production constraints associated with traditional media. Wireless communications methods and applications such as cell phones and text messaging then, do not replace but add to, and even change, the media ecology, expanding the information networks available to individuals to include more strongly the interpersonal level.

SECTION 6

THE LANGUAGE OF WIRELESS COMMUNICATION

A main subject that has begun to attract academic interest is the transformation of language caused by wireless communication especially as SMS spreads into everyday life and is appropriated to transmit all kinds of messages, not only among youth but also in the general population of mobile subscribers. This is, indeed, one of the facets in which technological evolution acts as a factor of cultural and behavioral change in the mobile society. In this sense, oral and written languages, as well as other ways of communication, are already reflecting this transformation.

First of all, our attention will be focused on the texting phenomenon. SMS is most prominently influencing the writing skill of children and teenagers. Two main influential factors need to be kept in mind in this discussion: the length limitation to 160 characters and the challenge of the interface (as long as mobile telephone keyboards are far from being comfortable for writing). Thus, a main consequence of intensive texting is for young users to improve their ability to synthesize. Young users need to summarize their messages in order to optimize each sent SMS, as if they were haikus.⁷⁹⁷ On the other hand, they develop a new language that can be defined as a new “writing orality” based on symbols and abbreviations.⁷⁹⁸ More important, the new language is based on phonetics because reproduction of the oral language helps to save characters, a scarce resource when texting. A good summary of what we are explaining can be found in this quotation:

Messages often bear more resemblance to code than to standard language. A text filled with code language expressions is not necessarily accessible to an outsider. The unique writing style provides opportunities for creativity. A mistake in one letter, a typing error, can produce a new term of endearment, which may remain in the SMS language either for a short time or permanently.⁷⁹⁹

To illustrate that creativity, which leads to a more efficient way of texting, in Appendix 2 a list of SMS words for different European languages has been included. It is worth to point out that all of them have some common patterns as, for instance, elision of vowels between consonants, word spacing left out, new ways of punctuation and capital letters use, or the general usage of English expressions combined with the own languages. SMS allows discreet and asynchronic communication. This asynchrony should be nuanced by the fact that, in many cases, communication is, actually, more

⁷⁹⁷ Ling and Yttri (2002, p. 18).

⁷⁹⁸ Fortunati and Manganelli (2002)

⁷⁹⁹ Kasesniemi and Rautiainen (2002, p. 183-184).

instantaneous than e-mail, and an answer should be given to be polite with your interlocutor. This answer could be just a “boom call” (a short signal call intended not to be answered). A final feature that should be highlighted about SMS is that direct confrontation is not necessary. So then, texting turned out to be a more “relaxed” way to inform about (or explain) feelings, delicate subjects, and so on.⁸⁰⁰ Without SMS, users may be more embarrassed to communicate the same information as illustrated in the following:

Texting helps teenagers (and some adult males) to overcome awkwardness and inhibitions and to develop social and communication skills – they communicate with more people, and more frequently, than they did before mobiles.⁸⁰¹

While texting has become very popular in Europe and the Asian countries including the Philippines and China, it is still in an early stage of growth in the United States. However, young Americans have also developed shorthand languages for quick messaging, especially based on their familiarity with messaging in the form of PC-based instant messaging (IM). Notwithstanding the genuine innovations that are taking place in text language, it should be noted that the creativity being observed among SMS users in the United States is not totally new, and the compression of text dates back to shorthand writing, for example for taking class notes⁸⁰² and secret codes among friends. What is new perhaps is the extent to which this has become an interactive and formalized medium amongst a larger population. Though perhaps not as prolific as their European and Asian counterparts, young Americans in particular are becoming part of this community that has text-based communication as a significant part of its culture. Not surprisingly, older generations are uneasy about the effect this has on the standard English language as messaging language seeps into formal writing tasks, especially in school,⁸⁰³ which is already happening.⁸⁰⁴ Appendix * shows a sample of SMS language in the U.S.

Secondly, and although it is not as popular as SMS, another element that will contribute greatly to the process of language transformation is the Multimedia Message System (MMS). Thanks to MMS, users can now send and receive images accompanied by text. Thus, peer-to-peer communication is extended, And it is foreseeable that, if pricing and system conditions are favorable, the same

⁸⁰⁰ Mante; Piris (2002; p. 51), referred to The Netherlands; Lobet-Maris; Henin (2002, p. 104), referred to Belgium.

⁸⁰¹ Fox, K (2001?), referred to the UK.

⁸⁰² Lorente (2002).

⁸⁰³ Trujillo (2003).

⁸⁰⁴ Lee (2002).

creativity seen for texting could also emerge for “imaging” in the near future. MMS is a non-real time service that, despite its similarity to SMS, is less textual and more visual.⁸⁰⁵ This fact opens a multimedia channel of peer-to-peer communications, which users are just starting to exploit.⁸⁰⁶

Users of multimedia messages are not going to be solely young people because taking a photo, or making a short video, does not need the same skills than writing an SMS. So there may well be different demographics for end users who will develop different uses. For instance, camera telephones have been used by real state agents enabling them to forward pictures to prospective buyers, giving a speedy edge in a competitive market; or, at a Welsh hospital, senior doctors are allowing interns to send them pictures of an x-ray, speeding up the diagnosis and suggested treatment process.⁸⁰⁷

Under a wider scope, wireless Internet should also be considered because it can be seen as the next step in the development of multimedia communications. This new possibility of perpetual contact⁸⁰⁸ through the Internet is opening up another possibility of language transformation while computers are losing their stationarity.⁸⁰⁹ Therefore, as this device with its full capabilities is becoming wearable and attached to the human body, it will truly become a personal device.⁸¹⁰

Meanwhile, oral language, in addition to writing and visual ones, is also under transformation because of the new situations mobile telephony generates in the everyday life. Conversational analysis gives some interesting clues on this subject.⁸¹¹ The identification of individuals involved in the conversation varies with respect to calls made to a fixed telephone. Almost always, when a conversation starts, both the caller and the receiver will know whom they are talking to. From our viewpoint, this is because, on the one hand, mobile telephones have a caller ID display; and, on the other, as long as handsets are personal and, usually, each telephone number is associated with one person, it is reasonable to expect that the individual who answers the phone is precisely the one who the caller want to talk to.

⁸⁰⁵ Mobile Streams, Ltd (2002)

⁸⁰⁶ Kurvinen (2003), referred to Finland.

⁸⁰⁷ Examples quoted from <http://www.textually.org/picturephoning/archives/002604.htm> (posted on 16-12-04; downloaded on February, 2004).

⁸⁰⁸ Katz; Aakhus (2002)

⁸⁰⁹ Kasesniemi (2003; p. 37)

⁸¹⁰ Crabtree et al, (2003, p. 6)

⁸¹¹ Weilenmann (2003).

Thus, there is still an asymmetry of information⁸¹² between the caller and the answered as when using wired telephones, although its components have changed. While identification process changes and less time is devoted to it, other parts of conversation increase their preeminence. In this sense, more conversational time should be devoted to give orientations about the location, the activities and/or the availability of the called person. Sometimes it would be enough to state one of those three points to give very rich information, but this is not a rule that always works. Indeed, sometimes it is crucial to inform caller about the context because of the intrusion the call may cause. Once this piece of information is given, the talk can either finish or continue with its real topic.

Despite the actual availability of the called individual, there is also the possibility for her/him of not to answer⁸¹³ the incoming call or, moreover, to hang up the telephone. Each behavior gives different message to the caller but, as should be empirically examined, the second one shows a higher degree of intimacy with respect to the caller.

Finally, there is what has been called m-etiquette⁸¹⁴ or mobile etiquette⁸¹⁵, which can be defined as the collection of rules that establish the public use of mobile telephony. Even though some handbooks on this subject has already been published,⁸¹⁶ we are talking about a non-written set of rules that, indeed, is still under construction.⁸¹⁷ So we may talk about a social learning process about how to deal with permanent availability that has an important random component because part of the interactions is unexpected (i.e., incoming calls).⁸¹⁸ This social learning process, which can also be identified as the social appropriation or domestication process, has two sides. One refers to manners, because people have learned how and when a mobile phone could be used and, moreover, some old embarrassments are not usually happening nowadays thanks to the generalization of some technical features. New design of devices has evolved in this direction, and vibration or silent modes are commonly used.

The second aspect refers to customs because, in countries with an average penetration greater than 70%, these days everybody has get used to hear a mobile ring in almost all situations. Nevertheless,

⁸¹² Schegloff (2002, p. 290).

⁸¹³ Ibid, p. 296.

⁸¹⁴ Lacohee, Wakeford and Pearson. (2003, p. 207)

⁸¹⁵ Crabtree et al (2003, p. 38); Licoppe and Heurtin (2002, p. 102)

⁸¹⁶ Haddon (2000, p.5); Moore (2003, p. 71)

⁸¹⁷ Puro (2002, p. 26), referred to Finland; Katz and Aakhus (2002, p. 10);

⁸¹⁸ Licoppe and Heurtin (2002, p. 99).

each country will define what good manners are and what not. In this sense, a comparative study should be highlighted, which was carried out in London, Madrid and Paris about the mobile telephone use in public places.⁸¹⁹ Given the fact that starting a conversation when walking on the street is seen as a way of not being alone,⁸²⁰ it is hardly surprising for the researcher to find that mobile telephone is commonly used outdoors in all three cities. Moreover, the body language of mobile telephony users differs from the usual one of pedestrians.⁸²¹ For instance, they avoid eye contact with people around, often ignoring them.⁸²²

The use of mobile telephones in indoor public places entails the possibility of being overhead and disturbing people around (for instance, in trains or in a waiting line). In the three cities, and also around Europe,⁸²³ a common rule of mobile etiquette is to talk in a low voice as noisy users are considered the main negative aspect of mobile telephony in public places. This is also applied when users are in the theater, the cinema, even planes and, of course, in class⁸²⁴, although its use explicitly is banned. One of Lassen's conclusions is that the "de facto" etiquette differs from what is considered to be good and what is considered to be the wrong use of mobile telephones. This is a sign, indeed, that behaviors are changing quite fast.

⁸¹⁹ Lassen (2002).

⁸²⁰ Also stated in Fortunati (2002)

⁸²¹ Also stated in Murtagh (2002)

⁸²² Also stated by Murtagh (2002)

⁸²³ Licoppe and Heurtin (2002), referred to France; Ling (2004), referred to Norway;

⁸²⁴ Also stated by Varbanov (2002, p. 131), referred to Bulgaria; Ling (2004), referred to Norway; Oskman and Rautiainen (2002) and Kasesniemi (2003), referred to Finland; Eldridge and Grinter (2001) and Grinter and Eldridge (2001), referred to the UK; Weilenmann (2003), referred to Sweden; Fortunati and Manganelli (2002), referred to Italy; Höflich and Rössler (2002), referred to Germany; Lobet-Maris and Henin (2002), referred to Belgium.

SECTION 7

SPACE AND TIME IN THE MOBILE COMMUNICATION SOCIETY

Time and space are the fundamental, material dimensions of human existence. Thus, they are the most direct expression of social structure and structural change. Technological change, and particularly communication technology, does have a critical impact on spatio-temporal change, but the influence of technology does not act in isolation of broader sources of change. The investigation on the structure and dynamics of the network society has shown the emergence of new forms/processes of space and time: the space of flows and timeless time.⁸²⁵ Simply put, the space of flows is the material organization of simultaneous social interaction at the distance by networking communication with the help of the technological support of telecommunications, interactive communication systems, and fast transportation technologies. The space of flows is not a placeless space, it does have a territorial configuration related to the nodes of the communication networks. But the structure and meaning of the space of flows is not related to any place but to the relationships constructed in and around the network processing the specific flows of communication. The content of the communication flows defines the network, and thus the space of flows, and the territorial basis of each node. Timeless time refers to the de-sequencing of social action, either by time compression or by random ordering of the moments of the sequence, such as in the blurring of the life cycle under the conditions of flexible working patterns, and self-controlled mothering.

The diffusion of mobile communication technology greatly contributes to the spread of the space of flows and timeless time as the structures of our everyday life. Mobile communication device links in terms of social practice multiple places, which suddenly interact through the people being there and being at the same time in communication with someone somewhere else. Even if the majority of the calls are to people living in the same town, and often sharing a nearby space, the space of social interaction becomes redefined by creating a subset of communication between people that use their place to build a network of communication with other places. Because this mobile communication relentlessly changes the location reference, the space of the interaction is entirely defined within the flows of communication. People are here and there, in multiple heres and theres, in a relentless combination of places. But places do not disappear. Thus, in the practice of rendezvousing, people walk or travel towards their destination while deciding which destination is going to be on the basis of the instant communication in which they are engaged. Thus, places do exist, but as points of convergence of communication networks created and recreated by people's purposes.

⁸²⁵ Castells (2000), chapters 6 and 7.

In order to give full significance to our argumentation, it is worth to point out that the concept of rendezvousing we are using here refers to the informal, geographical co-ordinations of small groups of friends, family and team mates that take place in the physical world. Indeed, it is precisely in the context of a wireless networked society where this concept achieves its full sense, because the purpose of a rendezvous is for individuals to come together to participate in a subsequent group activity. Thus, it includes “meeting a friend for lunch”, “collecting the kids from school”, and “pausing at an intermediate way-point to re-stock and plan the next phase of activity” but does not include formal, or anonymous attendance at institutions, such as “reporting to the Tax Office for interview” or receipts for service, such as “Pizza delivery.”⁸²⁶

This phenomenon has also been described by other authors using different terminology. Indeed, what Ling and Haddon call micro coordination through mobile communication influences the travel patterns that are modified in real time by the instructions or negotiations related to the micro-coordination process.⁸²⁷ The “freedom of contact” provided by the mobile phone means for people to free themselves from the place-based context of their interaction, shifting their frame of reference to the communication itself, that is to a space made of communication flows, based on the availability of the technological infrastructure that makes it possible.⁸²⁸ Among Korean professionals going out for after-work parties, for example, Shi-Dong Kim calls this a new “nomadic” way of life because appointments can be made anytime to allow someone to go to multiple parties a single night as the evening unfolds.⁸²⁹ When such a mobile mode of communication and networking becomes prevalent, those who are not equipped or forget to bring their handsets will be socially disabled as Misuko Ito observes in the Japanese context, “To not have a *keitai* (cell phone) is to be walking blind, disconnected from just-in-time information on where and when you are in the social networks of time and space.”⁸³⁰

Timeless time as the temporality that characterizes the network society is also enhanced by mobile communication. The availability of wireless communication makes possible to saturate time with social practice by inserting communication in all moments when other practices cannot be conducted, such as the “in-between” time during transportation or in a waiting line,⁸³¹ or simply in a free time

⁸²⁶ Colbert (2001, p. 16).

⁸²⁷ Ling and Haddon (2001).

⁸²⁸ Crabtree et al (2003).

⁸²⁹ Kim, S.-D. (2002, pp. 70-71).

⁸³⁰ Ito (2003a).

⁸³¹ Larimer (2000, p. A29).

condition. Thus teenagers use their time at home, under the family surveillance, or in the school under supervision, to transcend the institutional barriers of control and create their own space of interaction, thus filling in the time of non-chosen activity. Or, else, any waiting time becomes a potential communication time and the general notion of time is “softened” to accommodate all kinds of activities, sometimes in a simultaneous manner.⁸³² Personal networks of communication never leave the individual. The professional worker constantly interacts with her office or receives calls and instructions. Everybody becomes only one call away from his/her working environment, family duties or personal connections. Everybody transports his/her world on himself or herself. Under such conditions, we witness the emergence of what Nicola Green calls “mobile times” under three main, different institutional settings.

In this sense, the author states that connections between mobile space and time, as articulated in multiple, heterogeneous places and rhythms, is not constant and does not have equal effects for all.⁸³³ Thus, three main rhythms of mobile time can be defined: rhythms of device use; rhythms of everyday life; and rhythms of institutional change.

First of all, rhythms of device use refer primarily to the duration and sequencing of interaction between an individual and the device. Deepening in the concept, the author states, first, that time spent using communicational devices make relationships durable and ongoing, rather than “fragmented”. And, secondly, the measure of duration of activity as a measure of significance for the usability of devices may not be as salient as previously thought.

Nevertheless, and in order to qualify this first statement, we must add that when discussing usability a distinction must be done between time spent because user wants to expend it (i.e.: texting, playing, etc.) and time compulsorily spent to complete certain activities. Although those categories are subjective, and could also appear in a mixed form, only in the second case usability will be eroded by the activity long duration. At last, and similarly to the Internet⁸³⁴, usability is related with the option to do what you want as quickly as you can.

Rhythms of everyday life, the second category described by Green, refer to the local temporalities associated with social and cultural relationships in which specific device use is embedded. Indeed,

⁸³² See Rheingold (2002, pp. 5, 190-8) for the “softening of time.”

⁸³³ Green (2002).

⁸³⁴ Katz, Rice and Katz (2002).

these aspects of device use are integrated into emerging patterns of organizing mobile communications and relation in everyday life.

Rhythms of institutional change, finally, refer to the historical and infrastructural elements that enable mobile use; including such dimensions as the institutionalization of travel, cycles of technological development, or the time taken to establish and maintain network technologies. In this sense,

(...) mobile devices act as “Lazarus” devices –devices that “resurrect” mobile time that would have previously been considered “dead”.⁸³⁵

This has already been perceived by teenagers, who fulfill this empty (or dead) time playing, sending SMS, or listening to music; and define them as “killing time”⁸³⁶ activities that, whatever the context is, will help to avoid boredom. So, the “resurrection of mobile time” affects working time, leisure time, etc., contributing to the blurring of time thanks to the desequencing of activities that is allowed by “perpetual contact”⁸³⁷ or the “space of persistent connectivity.”⁸³⁸ In addition, and as long as they provide utility to the user, new activities arisen during “dead times” create value both under a personal and an economical point of view.

As in all spatio-temporal configurations, the transformation of space and time also results in the rearrangement of their relationships. Hence, in the “real-time city”⁸³⁹ emerges a reconfiguration of the spaces of urban social life that introduces opportunities for new continuities across space and time, previously disjointed through centralization.⁸⁴⁰ Indeed, as stated by Green, individuals organize their activities around flexible compartments of time, rather than compartments of time associated with particular geographical spaces. Thus, and thanks to mobile communications, a kind of spatial and temporal “boundary rearrangement” becomes possible.⁸⁴¹ Moreover, is this time-based (rather than space-based) organization of activities that defines “accessibility”, leading to a redefinition of “public time” and “private time” time into “on time” and “off time”.⁸⁴²

⁸³⁵ Perry et al. (2001), quoted in Green (2002, p. 290).

⁸³⁶ Moore, K.(2003, p. 71)

⁸³⁷ Katz and Aakhus (2002).

⁸³⁸ Ito and Daisuke (2003, pp. 1, 4, 19).

⁸³⁹ Townsend (2000)

⁸⁴⁰ Green (2002; p. 290)

⁸⁴¹ Ibid, p. 288.

⁸⁴² Ibid, p. 288.

In sum, by making possible interactive communication around the clock and across the space, be it local or global, regardless of location of the nodes in the network, wireless communication homogenizes space: being ubiquitous means transcending space. By compressing and desequencing time, also creates a new practice of time. But there is still space and there is still time, because social practices are material practices that need a material support for their existence. However, this material support is embedded in communication systems, and in the social geography and cultural context of these communication systems. There is a new spatio-temporal formation made of communication flows and their infrastructure. Because this infrastructure depends on place-based nodes (the access points) and their networking, the space of flows shapes timeless time. Where you are determines your ability to transcend time and space. The spatial structure of wireless communication determines the capacity of people and functions to access to the new, dominant spatio-temporal configuration of our age. The more information systems and databases can be accessed and interacted from mobile devices, and the more the access to the space of flows is the decisive feature of social organization.

SECTION 8

MAKING SENSE OF OBSERVATION

The evidence we have collected and analyzed can be summarized by pointing at a number of emerging social trends that, together, signal the formation of a mobile communication society as a key component of the broader social structure that characterizes our world, the network society. We will not repeat here the empirical observations and analytical commentaries that have been presented throughout this research report. Rather, we will focus on what seem to be the main social processes resulting from the observation conducted in a variety of cultural and institutional contexts. The trends we will present below interact with each other, so that listing them sequentially is tantamount to an excessively schematic presentation of a highly complex development. Yet, for the sake of simplicity, we will present separately each one of these distinct trends before elaborating on their relationships.

In general terms, we verify again in this study that technology does not determine society: it is society, and can only be understood in social terms as a social practice. This means, concretely, that uses of wireless communication are fundamentally shaped and modified by people and organizations, on the basis of their interests, values, habits, and projects. However, at the same time, the specific characteristics of the technology, in this case wireless micro-electronic based communication, enable, enhance, or even innovate the realm and content of communication, by extending the domain of what is feasible. Because communication is the fundamental process of human activity, the modification of communication processes by the interaction between social structure, social practice, and a new range of communication technologies, constitutes indeed a profound social transformation. Yet, in summarizing the results of our exploration, we will not yield to the temptation of speculating on the potential consequences of this development, and will remain as close as possible to our body of evidence, while trying to make sense of it in analytical terms.

It must be said that several of the trends that seem to be most significant in transforming communicative practices have been observed primarily among the young users of wireless communication. But we believe that this is not only a function of the correspondance between the youth culture and the logic of wireless communication. It is also the expression of the easier acceptance and greater capacity of the young generation to adopt, adapt, use, and innovate new communication technologies. Thus, because they use more, better, and faster, these technologies, they reveal more rapidly their potential uses. Furthermore, because the young generation in all societies is their future, it is highly likely that today's youth will carry on with them into their mature years the habits and practices that we have observed, or at least a modified version of their current

patterns of behavior. Thus, we may well consider the youth nowadays as the harbingers of the mobile communication society, although we are aware that the age group context will indeed somewhat modify their communication behavior in the future. In sum, by observing current communication practices among the youth mobile society, we may have a look into the future, however distorted by the age bias, without venturing in the shaky ground of forecasting the coming society.

With all these caveats in mind, here there are the most salient, empirically observed trends in the practice of communication enhanced/enabled by wireless microelectronics-based communication technology

8.1. AUTONOMY

The subjects of communication processes considerably enhance their autonomy by using wireless communication systems. This means autonomy vis a vis spatial location, time constraints, and, to a large extent, social and cultural norms. This autonomy is both individual and collective. It may refer to a person or to an organization or to a social group or to a social network or to a social movement. The key issue is that the subject of communication enhances its control over the communication process.

To be sure, this autonomy should not be understood in absolute terms. Access to an effective technological infrastructure, affordability of cost, literacy in the uses of the system, degrees of freedom of communication vis a vis regulatory authorities, legal environments and the like are impediments to unrestricted communication that continue to operate within the new technological environment. Yet, even those limits are often challenged by the new communication technologies, forcing a redefinition of the public space of communication in institutional and cultural terms.

Mobile communication is seen to facilitate the combination of autonomy and safety by making the individual free to relate to the world at large, while still relying on her personal support infrastructure. This has been particularly observed in the case of the family, as children and young people can be by themselves and with their peer without losing the permanent contact with home. This “safe autonomy” pattern also characterizes other sets of inter-personal relationships as well as instrumental practices (eg, the professional worker always on the move, yet in touch with her base office). In other

words, it is not simply the rule of the individual, but the capacity of the individual to be at the same time in her self and in the net.

8.2. NETWORKS OF CHOICE

Mobile communication has greatly enhanced the chances, opportunities, and reach of interpersonal sociability and shared practices. People, particularly young people but not only, build their own networks of relationship, usually on the basis of their face to face experience, interests, and projects, and then keep them constantly open by using wireless communication, more often than the fixed-line Internet. Thus, peer groups become reinforced in this hybrid space of physical, on-line, and wireless communication interaction. But the technology also allows for a rapidly changing network, adding individuals to or deleting individuals from the network, according to the changing projects and moods of each individual in the network. So that networks expand, overlap, and modify following a decentralized multiple entry/exit structure of communication. It follows an extremely malleable pattern of communication, highly sensitive to the evolution of orientations among the participants in the communication process. Thus, at the same time we observe stepped up communication, increasing rootedness of electronic communication in face to face experience, and extreme dependency on the composition of the communication networks vis a vis the desires of the communication subjects. Social choice, including communication choice, continues to be framed by institutions and social structure. But within these limits, wireless communication considerably enhances the choice of interlocutors, and the intensity and density of the interaction.

8.3. INSTANT COMMUNITIES OF PRACTICE

One of the most important communicative practices we have observed is the emergence of unplanned, largely spontaneous communities of practice in instant time, by transforming an initiative to do something together in a message that is responded from multiple sources by convergent wills to share the practice. This is of course most evident in the flash political mobilizations, some of which we have analyzed in this report. But it is not limited to socio-political uses. It is manifested as well in professional projects, in cultural experiences, in countercultural expressions, in party going, in "raves", in family reunions, in celebrations of sports' fans, in religious gatherings, and so on. In other words, the general trend observed in our societies of ad hoc groupings taking precedence over formal

structures of interaction and participation, be it family traditions, civic associations or political parties, finds its technological platform in this capacity to call for action or for meeting or for sharing, in instant time. It is important to emphasize that these communities can only be formed if the message aiming at constituting them resonates in a network of affinity. In other words: communities of practice, in the mobile society as elsewhere, express the latent existence of common interests and/or values. But on the basis of this latent structure, communities of practice can be formed instantly by a message that strikes a cord along a network of receptive subjects. As for the resilience of these instantly formed communities over time, we lack evidence to evaluate it. However, it is an important question, particularly for the understanding of new forms of social mobilization, that should be taken up by researchers.

8.4. THE BLURRING OF THE SOCIAL CONTEXT OF INDIVIDUAL PRACTICE

Wireless communication does not transcend space and time, as it is often stated in terms of an apparently common sense observation. It blurs, rather than transcends, spatial contexts and time frames. This is an observation repeatedly documented in the studies on the social dimensions of wireless communication. These studies show that there is a new spatial context and a new time dimension in which the communication takes place. It is the space and time of the communicating individual, that is a material form, as material as any other space and time, but this is chosen by the communication subject. Furthermore, since communication is at least bilateral and potentially multiple (networks of wireless communication), the time/spatial context is formed by the frame chosen by the initiator of the communication, the frame of the solicited communicator, and the set of relationships objectively existing between the two or more time/spatial contexts. Besides, not only time and space are blurred (not eliminated but blurred) but organizational contexts, and social practices are often mixed. This is the case of communication taking place in airports or stations with the family, office, and friends. Or the multiple uses of mobile devices from the car. Or the multimedia use of the mobile device (image taking and sending, audio retrieving and playing, data transmission, interpersonal communication) blurred in chosen time/space contexts. So, the mobile communication system enables the blurring, mixing, and recomposition of a variety of social practices in a variety of time/space contexts. But the blurring process is not undertermined. It is centered on the communicating individual. So, it is an individually-centered production of the material and social process of communication. So, doing networks of individual interaction tend to free themselves from

organizations, institutions, norms, and material constraints, on the basis of personal convenience and adequacy to individual projects. It follows an extraordinary strengthening of the culture of individualism (meaning, the primacy of individual projects and interests over the norms of society or reference groups) in material terms. Therefore, individualism rather than mobility is the defining social trend of the mobile society. Because it does not only allow to communicate on the move, but to communicate from immobility, as it is shown in a number of studies on the benefits of mobile communication in enhancing the communicative capacity of disabled persons.

One consequence of this development, is that traditional norms of courtesy and acceptable behavior have to be redefined in the new context. Since people build their own privacy space by simply ignoring the other around them, a new M-etiquette (and its implicit norms of cultural domination) is struggling to be adopted, stating when it is proper to isolate oneself from the social environment and when not. When it is acceptable to expose personal life in the middle of an audience of strangers and when it is not. Or when pupils can talk or email to their friends in the classroom and when it is not.

In sum, the blurring of time, space, and activities into a new frame of chosen time, space, and multipurpose communication, dematerializes pre-existing social structure and reconstructs it around individually centered networks of interaction. This is not the fading away of time, but the emergence of chosen time, and of compressed time, to fit in the multi-tasking of communication. This is not the end of distance, but the definition of interaction in a space of communication flows structured around spatial nodes of opportunity. And this is not the confusion of all social practices, but the constitution of a set of practices around the interests, values, and priorities of each individual. It is the blurring of the pre-existing social structure of communication, but it is also the relentless definition of new channels and forms of communication. More important than communication on the move, is the rise of moving communication patterns.

8.5. ACCESS TO THE WIRELESS NETWORK AS SOURCE OF PERSONAL VALUE

We know that the value of a network increases exponentially with its size and with the intensity of interaction. From the observation of social behavior in wireless communication networks we also verify this general observation of the network logic. Users become mobile communication-dependent very soon. They tend to be always on, and find ways to reduce the cost of communication. When

government regulations, technological standards and business pricing systems favor the diffusion of wireless communication, it becomes explosive. People at large, but particularly the youth, and workers in their professional environment, find a major source of personal value in wireless communication. And they go to extraordinarily lengths to make an effort to access the network. Thus, pre-paid cards have led the diffusion of the use in developing countries and among the low income segments of the population in advanced countries. In China, the Little Smart phone systems have made major inroads among the working people, far from the trendy professionals of Shanghai, as our field work in Sichuan (West China) and the Yangzi River Delta (East China) shows. In Japan, i-mode became a major success by tailoring not only habits and needs, but pricing systems to its youth user population. And in Europe, the relative affordability and flexibility of mobile phone paying systems explains to a large extent the fast diffusion of wireless communication. In contrast, the US example of misled competitive strategies, lack of communicating standards, and misunderstanding of the pricing needs for the young users and the lower segments of the population has handicapped the diffusion of the technology, with potential serious consequences down the line, in terms of the learning curve and services availability, for both companies and the users at large.

In sum, wireless communication technology seems to be the most rapidly adopted technology, and the one that most users have found quickly indispensable for their lives, particularly among the youth and the professional workers. As soon as regulatory, technological, and affordability obstacles are lessened, there is an explosion in usage. This places a serious burden on regulators, because in the absence of an affirmative policy in favoring diffuse, those countries or areas left behind, will clearly suffer from hampered connection to a fundamental network. It is also clear that when wireless communication and the Internet come together, as in the experience of i-mode in Japan, and in new developments in Korea, the effect of increasing communication is amplified. We can even say that the blockage of Internet diffusion that Japan and other Asian countries were experiencing is being solved through wireless Internet connections. However, given the technical and business difficulties experienced by WAP and mobile Internet access in Europe and the United States, it becomes increasingly clear, by looking at patterns of social use, that the true convergence of wireless communication and the Internet becomes the critical question in the next phase of the Information Age. A few years ago, unwarranted expectations frustrated the technological and business promise of this convergence. It is clear that public policy should know inform and guide the choices to be made in this regards, as they condition the entire development of communication capacity of people and societies. Under these conditions, it becomes essential that equality of access to the network is

assured as a condition of full citizen participation in the network society. What schooling and access to public libraries were one century ago is now the right to have affordable, reliable access to the mobile communication network on which our shared experience is already based.

8.6. USERS ARE PRODUCERS OF CONTENT AND SERVICES

The observed experience of wireless communication shows that people adapt the technology to their needs and interests. They invent new uses, and even a new language (see below), go around regulations, quickly find better, cheaper available pricing schemes for themselves, and build networks of communication for purposes and uses that they were never in the cards of technologists and business strategists. This fully replicates the experience of the Internet, but it is even more significant because the first users of the Internet were highly sophisticated, while the bulk of innovative users of wireless communication technology are kids and young people with no special technical skills. Although, yes, they are already a part of the network society, being fully acquainted with the new technological paradigm. People find uses, and when they are able to, invent new services and create new content (eg, massive image swapping, texting etc); and when they do not find the services and content they need, they vote with their thumbs by not using what is offered. For instance, a common interpretation of the success of DoCoMo and i-mode is that they rely on a very good service of content provision, contracted to service providers that cater to the needs of users. This is partly true. But, in fact, some data show that the use of unofficial web sites on the Internet in i-mode users is three times more frequent than the user of official web sites contracted by DoCoMo. Yes, ones are free and the others are for a fee, but the amount of payment, in Japanese terms, is not important enough to explain the difference of usage. We would hypothesize that the range of services wanted by DoCoMo users is much broader than the uses imagined by DoCoMo marketing planners, as clever as they are.

Similarly, it would look like any chance to access public services, and deal with these services in a new way through wireless communication is met with great interest from the users. But public bureaucracies are just scratching the surface of their delivery possibilities, and usually reluctant to alter their routine.

Altogether, it seems that users of wireless communication are indeed the producers of the content, but their ability is limited, and this may stall the development of the technology in the borders of public bureaucracy and business as usual. The implication is that both business and the public sector would find in their interest to follow the innovations of users, not just by surveying them, but by interpreting signals of their innovative behavior in their uses, and then responding to the latent demand with a full array of services. In other words, supply should follow demand, which is not the case nowadays, except if we believe that demand is what pollsters and marketeers think it is.

8.7. CONSUMERISM, FASHION, INSTRUMENTALITY, AND MEANING

Too often the use of mobile devices has been perceived and interpreted as a function of consumerism, oriented by fashion. Evidence seems to indicate that this is a very narrow interpretation of users' behavior, once wireless communication has diffused broadly in a given social context. Mobile communication is used for all kind of purposes, many of them highly instrumental, in professional work, in the organization of the family's everyday life, in sustaining sociability networks, in commercial transactions, in gathering and forwarding information, in sharing music, in producing and diffusing images, in socio-political mobilizations, and the like. Also, it is not more consumption dependent or status seeking oriented than, let us say, the use of the automobile. However, as in the case of the automobile, design, and customization are important. And in the case of the youth, personal identity marks (colors, ring tones, shape, ornaments) as well as fashion trends in the device are certainly one of the dimensions present in the use of the technological devices. But it is not the dominant dimension in the adoption of mobile technology. Yet, what is relevant is that the device itself, and its technological attributes, has meaning for the users. This is part of the process of individual expression, of the construction of identity by appropriating a new technological environment and still feeling oneself. Thus, it is in the relationship between instrumentality and meaning that we find the understanding of social uses. Not just consumption, but multipurpose practice of communication. Not just fashion but identity.

8.8. THE TRANSFORMATION OF LANGUAGE

Texting is changing language through its widespread use in wireless communication. In an evolutionary view, we are seeing a new case in which the adoption of new technology affects the language itself, including vocabulary and grammar rules in the practice of people. And this practice ultimately affects the common language, and language itself.

In some cases, the new forms of written expression are signs of subcultures, and expression of innovation from the users. In fact, creative uses of language become a form of personal and group expression. But in most cases, it is the simple adaptation of language to the format and limits of the technology, including strategies to reduce the cost of transmission. Thus, what originally existed as “shorthand” with limited instrumental and personal uses (e.g. taking quick notes during an interview or lecture), has now evolved into a fully-fledged language system used widely within the wireless culture for social interaction. We are already at the point where new texting-oriented vocabularies can be listed for different languages, on the basis of observed practice (See Appendix)

Furthermore, the multimedia capacity of wireless communication technology (as it is the case with the fixed line Internet), displays a multimodal form of communication, with text, image, and audio being used from multiple locations. The observation shows that the combination of these different modes of communication, particularly by the young users, are creating new forms of meaning, characterized by the mixture of methods of assigning meaning, e.g. by using texting only for the personal commentary or for emphasis, while sound and images are supposed to be self-explanatory. The merger of text and audiovisual is now diffused more widely in various contexts of communication through the distributed communicative capacity of wireless technology. We are also beginning to see texting vocabulary spill over into standard English writing or French writing or Spanish writing. Teachers are beginning to complain about students using SMS words in their essays. Since language is closely related to the formation of culture (systemic production and communication of meaning), we are clearly in a process of cultural transformation associated to the spread of wireless communication, although the lack of academic research on the subject precludes for the time being to know the contours and directions of this transformation.

8.9. IS THE MOBILE COMMUNICATION SOCIETY CULTURALLY AND INSTITUTIONALLY DIVERSE?

As with the network society in general, the mobile communication society is culturally diverse. Each country, each culture, and each social group use the technology according to their values, habits, traditions, and projects. For instance, in Korea ignoring calls or messages from someone (what is labeled "chewing out") is seen as "really not cool" and irritating because it breaks reciprocity within the network. One girl interviewed said that when she was too tired of getting calls and messages she would discharge the battery of her cell phone (rather than ignoring the messages) because she "would rather die than chew out messages from others". This is a culturally specific practice due to the strength of Korean social networks that attach special value to reciprocal communication. The culture of *kawaii* (or cute) seems to be characteristic of Japan, as it expresses the Japanese taste for small, personalized technological products. However, this habit is spreading to China, Korea, Taiwan, and Hong Kong, so it could be considered a regional trend. In China, the exponential growth of Little Smart technology, that was presented and analyzed in our report, seems to be the most distinctive feature vis a vis other areas. This is not only linked to the economic condition of the users. There is something else: it fits well the culture of informal business relations (*guanxi*) and a loose interpretation of state policies in local business practices. Indeed, the Central Government had not formally authorized until recently fixed-line operators to build and sell mobile telephony, and the mobile license-holders strongly opposed the practice. Yet, China Telecom, as the most established company, enjoys good relationships with local officials, so they were able to diffuse Little Smart by using personal persuasion and informal connections. Interestingly enough, while the original technology behind Little Smart is from Japan, and UTStarcom is now selling it internationally, there is little sign that similar processes are taking place elsewhere, in spite of the clear appeal of this low-cost mobile communication technology for developing countries. The Chinese institutional context appears to be a better environment for its expansion than other countries in the world.

In the case of Europe, there is an interesting comparative study on the uses of mobile telephones in public space in three different cities, London, Madrid, and Paris, that raises the issue of cultural specificity. The possibility of interfering with other people's conversations or activities prompts the need of an informal m-etiquette. But this m-etiquette varies in each city. Thus, in Madrid, it seems to be more permissiveness for intrusive behavior than in London or Paris. This relaxed attitude towards strangers' communication also extends to the use of mobile phones in movie theaters or in

transportation, even airplanes. In contrast, in London and Paris, people tend to emphasize their need for privacy in the public space, thus low voice communication is required, and people on the phone avoid eye contact to be by themselves in their communication space.

Another feature that seems to be distinctive of the European context, is the inclination of users in the UK, France, Italy and Spain to engage in protest against the cost of telephone service. In France, for instance, users, after their collective demand, obtained a reduction in the rates for SMSs. In Spain and Italy protests against the telephone companies were organized over the Internet. It remains to be seen if consumers' collective action to control the management of wireless communication services is rooted in the European tradition of civic mobilization or is simply a function of the broader diffusion of mobile telephony in comparison to other areas of the world.

However, while cultural and institutional specificity shapes the uses of wireless communication, we would like to warn against reducing the sources of this specificity to countries. The variety of sources of cultural differences will manifest themselves within countries as well as between countries. And the context of the use of the technology does not depend on the national variation of institutions. Some times, the work context in contrast to the family context or to the context provided by interpersonal networks are more important sources of differentiation than the social environment defined by a given nation-state. Thus, we must re-interpret observations of cultural differences in wireless communication in terms of the social environment where they take place, rather than in political categories defined around national flags. Indeed, most of our observation tends to show that the main features associated with the use of wireless communication are present in the diversity of countries and areas on which we have collected information. Wireless communication seems to set in motion networks of individuals rather than define enclosures of national cultures.

8.10. THE MOBILE COMMUNICATION SOCIETY

In our observation of available evidence on the social uses and effects of wireless communication technology around the world we have perceived the emergence of new social arrangements characterized by networked social practices, an individual-centered culture, and distributed information and communication power. The technological ability to maintain this networking pattern of relationship anywhere where there is access to the communication infrastructure generalizes the

social structure conceptualized as the network society to all domains of activity and to all contexts, beyond the computer networks built on fixed telephone lines. We have shown the direct effects of this networking logic in the family, at work, in personal relationships, in culture, in language, politics. Unfortunately, the extent of scholarly research in this field of observation is still very limited, and techno-prophets and oil snake sellers tend to move in quickly to fill the void. Thus, we must be careful in providing the context of our findings and the limits of our analytical interpretation. Yet, after reviewing the evidence, we are convinced that we are contemplating the emergence of a new social landscape in which individualized persons strive to cope with the responsibility of constructing their networks of communication on the basis of who they are and what they want. Freedom is a dangerous adventure. The alternative, however, is the exclusion of the networks of communication that power our lives in our age. And this exclusion is still today the lot for most of humankind.

REFERENCES AND STATISTICAL SOURCES

REFERENCES:

References are organized by section for easier consultation by the reader. Sections in references correspond to the sections in the text.

Section 1: Comparative Statistical Overview of Diffusion

- Agar, J. (2003). *Constant Touch: a Global History of the Mobile Phone*. UK: Icon Books.
- Alden, J. (2002). *Competition Policy in Telecommunications: The Case of the United States of America*. ITU Workshop On Competition Policy In Telecommunications. Geneva, 20 – 22 November 2002. Document: CPT/05
- Arnold, W. (2000). Manila's talk of town is mobile. *The New York Times*, July 5. Retrieved June 5, 2004 from <http://partners.nytimes.com/library/tech/00/07/biztech/articles/05talk.html>
- Banerjee, A., & Ros, A. J. (2004). Patterns in global fixed and mobile telecommunications development: a cluster analysis. *Telecommunications Policy*, 28, 107-132.
- Beaubrun, R., & Pierre, S. (2001). Technological developments and socio-economic issues of wireless mobile communications. *Telematics and Informatics*, 18, 143-158.
- Chang, S.-J. (2003). The Internet economy of Korea. In B. Kogut (Ed.), *The global Internet economy* (pp. 262-289). Cambridge, MA: The MIT Press.
- Cook, J. (2004, September 7). Rolling wheat fields are also Wi-Fi country. *The Seattle Post Intelligencer*. Retrieved September 10, 2004 from http://seattlepi.nwsourc.com/business/189699_vivato07.html
- Council of Economic Advisors. (2000). *The economic impact of third-generation wireless technology*. Retrieved March 2004 from <http://www.ntia.doc.gov/ntiahome/threeg/ceareportoct2000.pdf>
- DeJong, J. (2001, July). Mobile Web – 'On the move and in touch' is an exciting prospect. But will it ever work? [Electronic version]. *PC Magazine*, 140.
- ECLAC (Economic Commission for Latin America and the Caribbean). (2001). *Foreign Investment in Latin America and the Caribbean (LC/G.2125-P/E)*, Santiago, Chile. United Nations publication, Sales N° S.01.II.G.12,
- Eurescom (2004) *e-Living: Life in a Digital Europe, an EU Fifth Framework Project (IST-2000-25409)*. Available at <http://www.eurescom.de/e-living>
- Felto, J. (2001). Crossed wireless. *American Demographics*, 23(9), 28.

- Friginal, R. (2003). From 25% to 2005: Teledensity to hit 33%. Malaya, November 13. Retrieved June 12, 2004 from <http://www.malaya.com.ph/nov13/busi1.htm>
- Genwireless (2001). www.genwireless.com
- Harter, B. (n. d.). SMS meets the United States: Can SMS achieve the same popularity in the United States as it has overseas? Retrieved June 5, 2004 from MbusinessDaily, http://www.mbusinessdaily.com/magazine/story/new/05_smsus
- Ito, M. (2004). Personal, Portable, Pedestrian: mobile phones in Japanese life. The Southern California Digital Culture Group. Los Angeles: Annenberg Center for Communication.
- ITU. (2002). Internet for a mobile generation. Geneva: ITU.
- ITU (2004). ITU Internet Reports 2004: The Portable Internet. Geneva: ITU.
- Kaihla, P. (2001). The Philippines' other revolution. Business2.com. May 08. Retrieved June 4, 2004 from <http://www.business2.com/b2/web/articles/0,17863,513551,00.html>
- Kelly, T., Minges M., & Gray, V. (2002) World Telecommunication Development Report: Reinventing Telecoms. Executive summary. Available at <http://www.itu.int>
- Kim, D.-Y. (2002). The politics of market liberalization: A comparative study of the South Korean and Philippine telecommunications service industries. *Contemporary Southeast Asia*, 24 (2), 337-370.
- Kim, H.-J., Byun, S.-K., and Park, M.-C. (2004). Mobile handset subsidy policy in Korea: Historical analysis and evaluation. *Telecommunications Policy*, 28, 23-42.
- KISDI Report (2003). Analyses of consumer expenditures for and using patterns of IT commodities and services (in Korean). Kyunggido: Korea Information Strategy Development Institute.
- Lasen, A. (n.d.) The social shaping of fixed and mobile networks: A historical comparison. Retrieved March 20, 2004 from <http://www.surrey.ac.uk/dwrc/papers/HistComp.pdf>
- Lee, Y.-Y., Park, Y.-T., and Oh, H.-S. (2000). The impact of competition on the efficiency of public enterprise: The case of Korea Telecom. *Asia Pacific Journal of Management*, 17, 423-442.
- Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco, CA: Morgan Kaufmann Publishers.
- Liu, H. (2004). Research on Market Dynamics of Little Smart in China, TeleInfo Institute, China Academy of Telecommunications Research of MII, March 2004.
- Lynch, G. (2000). US cellular: So cheap, so underappreciated. *America's Network*, 104 (11), 18.
- Maddox, K. (2003, December 8). Report predicts surge in WiFi use. *BtoB Online*. Retrieved

- September 5, 2004 from <http://www.btobonline.com/cgi-bin/article.pl?id=11989>
- Mante, E. (2002). The Netherlands and the USA compared. In J. E. Katz (Ed.), *Perpetual contact: Mobile communications, private talk, public performance* (pp.110-125). Port Chester, NY: Cambridge University Press.
- MIC Report (2003). Annual report of electronics and telecommunications in 2003 (in Korean). Ministry of Information and Communication. Seoul, Korea.
- Minges, M., Magpantay, E., Firth, L., & Kelly, T. (2002). *Pinoy Internet: Philippines Case Study*. Available at <http://www.itu.int>
- Moschella, D. (1999, February 1). For wireless, US culture drives us down our own path. *Computer World*, 33.
- Mueller, M., & Tan, A. Z. (1997). *China in the Information Age: Telecommunications and the dilemmas of reform*. Westport, CT: Praeger.
- OECD. (2000). *Mobile phones: Pricing structures and trends*. Available at <http://www.sourceoecd.org>
- OECD. (2003). *Mobile Phones: Pricing Structures and Trends*. Retrieved May 14, 2004 from <http://www.sourceoecd.org>
- Paetsch, M. (1993). *Mobile communications in the US and Europe: Regulation, technology and markets*. Norwood, MA: Artech House.
- Park, H.-Y. and Chang, S.-G. (2004). Mobile network evolution toward IMT-2000 in Korea: A techno-economic analysis. *Telecommunications Policy*, 28, 177-196.
- Pew Internet and American Life Project (2004). 28% of Americans are wireless ready. *Pew internet project data memo*. Available at <http://www.pewinternet.org>
- Plant, Sadie (n.d.). On the mobile: the effects of mobile phones on social and individual life. Retrieved March 20 from http://www.motorola.com/mot/doc/0/234_MotDoc.pdf
- Rafael, V. (2003). The cell phone and the crowd: Messianic politics in the contemporary Philippines. *Popular Culture*, 15(3): 399-425.
- Revolution. (2003, December 1). Comment: Educating Americans on the benefits of SMS, p.25
- Sharma, C., & Nakamura, Y. (2003). *Wireless data services: Technologies, business models and global markets*. Cambridge, MA: Cambridge University Press.
- Steinbock, D. (2003). *Wireless horizon: Strategy and competition in the worldwide mobile market place*. New York: AMACOM.
- Strom, G. (2002). The telephone comes to a Filipino village. In J. E. Katz and M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 274-

- 283). Cambridge, MA: Cambridge University Press.
- Srivastava L. (2004). Shaping The Future Mobile Information Society: The Case Of Japan. ITU/MIC Workshop On Shaping The Future Mobile Information Society, Seoul, 4-5 March 2004. Document: SMIS/06. Available at <http://www.itu.int>
- Toral, J. (2003). State of wireless technologies in the Philippines. Proceedings for “Closing Gaps in the Digital Divide: Regional conference on digital GMS.” February 26-28, 2003. Bangkok, Thailand. pp. 173-177.
- TNS (June 18, 2001) New Study Reveals Low User Awareness Of 3G Wireless Internet In Key European And North American Markets. Retrieved June 4, 2004 from <http://www.tns-global.com>
- TNS. (2002). Wireless and Internet Technology Adoption by Consumers Around the World. Accessed March 20, 2004 at www.tns-global.com
- The Economist (2002, March 16). Business: The tortoise and the hare; Mobile telecoms. 362(8264), 76
- TWICE. (2004, March 22). Wireless data use still limited in US. 19(7), 14.
- Uy-Tioco, C. A.S. (2003). The cell phone and Edsa 2: The role of communication technology in ousting a president. Paper presented to the 4th Critical Themes In Media Studies Conference, October 11, 2003, New School University, New York.
- Wired. (2003). UnWired: Special Wired Report.
- Yang, (2003); “Information Ministry plans ‘Ubiquitous Korea’ by 2007,” Korea Times. June 10, 2004.
- Yang, H.-D., Yoo, Y.-J., Lyytinen, K., and Ahn, J.-H. (2003). Diffusion of broadband mobile services in Korea: The role of standards and its impact on diffusion of complex technology system. Unpublished manuscript. Retrieved June 21, 2004 from <http://weatherhead.cwru.edu/pervasive/Paper/UBE%202003%20-%20Yoo.pdf>

Section 1: Statistical Sources

- A.T. Kearney (2001). *Mobinet Index #3*. Retrieved May 21, 2004 from <http://www.atkearney.com>
- A.T. Kearney (2002). *Mobinet Index #5*. Retrieved March 20, 2004 from <http://www.atkearney.com>
- A.T. Kearney (2004). *Mobinet Index 2004*. Retrieved August 17, 2004 from <http://www.atkearney.com>
- China Statistical Yearbook*. Beijing: China Statistics Publications, 1990.
- China Statistics Yearbook (1999-2003)*. Beijing: China Statistics Publications.

- U.S. Federal Communication Commission. *Trends in Telephone Service, 2002*.
FCC Reports. *Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*. (1999-2003) Available at www.fcc.gov/wcb/stats
FCC (2004). *Industry Analysis and Technology Division Wireline Competition Bureau, May 2004*.
U.S. Department of Commerce, Bureau of the Census. *Historical Statistics of the United States: From colonial times to 1970 (1976)*.
Hilbert and Katz (2003). *Foreign Investment in Latin America and the Caribbean*. Economic Commission for Latin America and the Caribbean, UN Publications.
ITU World Telecommunication Indicators Database, 2002.
ITU telecommunications statistics. Available at http://www.itu.int/ITU-D/ict/statistics/at_glance/KeyTelecom99.html
Japan Ministry of Public Management, Home Affairs, Post and Telecommunications (MPHPT).
Japan MPHPT, Information and Communications Policy Bureau.
Japan Statistics Yearbook.
Korea National Statistical Office.
OSILAC from ITU (Observatorio para la Sociedad de la Informacion en America Latina y el Caribe). [Observatory for the Information Society in America Latina and the Caribbean].
Courtesy of Martin Hilbert

Section 2: Social Differentiation of Wireless Communication Users

- 3G Americans (no date). *Short messaging services (SMS) for success*. Retrieved May 22, 2004 from <http://www.3gamericas.org>
Agar, J. (2003). *Constant Touch: a Global History of the Mobile Phone*. UK: Icon Books.
Allardyce, J. (2002). Youthful outlook: Tapping into the teen market. *Rural Communications*, September/October, p.54-56.
Anfuso, D. (2002, April 22). *Cell phone usage continues to rise*. Retrieved March 20, 2004 from <http://www.imediaconnection.com/news/581.asp>
Arnold, W. (2000, July 5). Manila's talk of town is mobile. *The New York Times*. Retrieved June 5, 2004 from <http://partners.nytimes.com/library/tech/00/07/biztech/articles/05talk.html>
Bucholtz, Mary (2002). Youth and cultural practice. *Annual Review of Anthropology*, 31, 525-552.
Cingular Wireless (2003). *Guys still gab more on wireless*. Cingular News Release, June 23.

- Retrieved August 16, 2004 from http://www.cingular.com/about/latest_news/03_06_23
- Cheil Communications (2003). *Exploring P-Generation*. Seoul, Korea.
- Dano, M. (2004). Wireless entertainment shortchanges women, youth. *RCR Wireless News*, May 3, 21(18), 4.
- Dizon, K. (2003). Text messaging makes cell phones even hotter among kids. *Seattle Pi*, September 30. Retrieved July 2, 2004 from http://seattlepi.nwsource.com/lifestyle/141809_texting30.html
- Euromonitor, (2003). *Cellular and wireless communications systems in the USA (July 2003)*. Retrieved from Market Monitor Research database.
- Fattah, H. (2003). America Untethered. [Electronic version] *American Demographics*, March 1. Retrieved May 21, 2004 from - <http://www.upoc.com/corp/news/UpocAmDem.pdf>
- First large-scale survey on mobile Internet in China successfully completed (in Chinese). *Guangzhou Daily*. August 26, 2004.
- Fortunati L., Manganelli, A. M. (2002). Young People and the Mobile Telephone. *Revista de Estudios de Juventud*, 52, 59-78.
- Fitchard, K. (2002, March 1). The next tycoon of teen. *Wireless Review*. Retrieved September 18, 2004 from http://wirelessreview.com/ar/wireless_next_tycoon_teen/
- Frissen, V. (2000). ICT in the Rush Hour of Life. *The Information Society*, 16, 65-75.
- Greenspan, R. (2003a). *Wireless youth most likely to cut cord*. ClickZ, August 12. Retrieved June 9, 2004 from <http://www.clickz.com/stats/markets/wireles/article.php/2247081>
- Greenspan, R. (2003b). *UK texting takes off*. ClickZ Stats, July 16. Retrieved August 16, 2004 from http://www.clickz.com/stats/markets/wireless/article.php/10094_2236031
- Hjorth, L. (2003). Cute@keitai.com. In N. Gottlieb and M. McLelland, (Eds.), *Japanese Cybercultures*. (pp. 50-59). New York: Routledge.
- Horrigan (2003). *Consumption of information goods and services in the United States*. Pew Internet and American Life Project. Retrieved May 20 from <http://www.pewinternet.org>
- IDC (2003). *U.S. Youth/Young Adult Wireless Subscriber Forecast, 2002-2007: In Search of the Perfect Storm*. Retrieved June 5, 2004 from <http://www.idc.com/getdoc.jsp?containerId=29822>.
- In-Stat/MDR (February 3, 2004). *Youth Market Represents Large Opportunity for Wireless, Boost Mobile May Already Have Edge*. Retrieved June 5, 2004 from <http://www.instat.com>
- In-Stat/MDR (April 19, 2004). *Mobile Data Users Now Representing the Mainstream*. Market Alerts, April 19 Retrieved June 5, 2004 from

<http://www.instat.com/press.asp?Sku=IN030933MD&ID=871>

- Ito, M., & Okabe, D. (2003). *Mobile Phones, Japanese Youth, and the Re-Placement of Social Contact*. Paper presented at the conference “Front stage - back stage: mobile communication and the renegotiation of the public sphere.” Grimstad, Norway.
- ITU. (2002). *Internet for a mobile generation*. Geneva: ITU.
- Jorgensen, B. (2002). Kids join the wireless revolution. *Electronic Business*, 28(11), 29.
- Kasesniemi, E.-L. (2003). *Mobile Messages. Young people and a New Communication Culture*. Tampere University Press.
- Katz, J. E., Rice, R.E., & Katz, J. E (2002). *Social Consequences of Internet Use: Access, Involvement, and Interaction*. MIT Press.
- Kim, S.-D. (2002). Korea: Personal meanings. In J. E. Katz and M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 63-79). Cambridge, MA: Cambridge University Press.
- KISDI Report (2003). *Analyses of consumer expenditures for and using patterns of IT commodities and services* (in Korean). Kyunggido: Korea Information Strategy Development Institute.
- Genwireless (2001). www.genwireless.com/stats.html
- Lacohée, H., Wakeford, N., & Pearson, I. (2003). A social history of the mobile telephone with a view of its future. *BT Technology Journal*, 21(3), 203-211.
- Ling, R. (1999). *I am happiest by having the best: The adoption and rejection of mobile telephony*. R&D Report 15/99, Kjeller, Norway, Telenor.
- Ling, R. (2002). Adolescent girls and young adult men: Two sub-cultures of the mobile telephone. *Revista de Estudios de Juventud*, 52, 33-46.
- Ling, R. (2004). *The Mobile Connection: the Cell Phone's Impact on Society*. **Morgan Kaufmann Publishers.
- Ling, R. and Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 139-169). Cambridge, MA: Cambridge University Press.
- Liu, Hui (2004). *Research on Market Dynamics of Little Smart in China*, TeleInfo Institute, China Academy of Telecommunications Research of MII, March 2004.
- Lobet-Maris, C., & Henin, J. (2002). Talking without communicating or communicating without talking: from the GSM to the SMS. *Estudios de Juventud*, 57, 101-114.
- Mante, E. A. & Piris, D. (2002). SMS use by young people in the Netherlands. *Revista de*

- Estudios de Juventud*, 52, 47-58.
- McDonald, Maureen (2000). Cell phones are hot with teens. *The Detroit News*, June 5.
Retrieved June 30, 2004 <http://www.detnews.com/2000/features/0006/05/b01-68451.htm>.
- McGray, Douglas (2002). "Japan's Gross National Cool." *Foreign Policy*. May/June 2002, pp. 44-54.
- Moore, K. (2003). *ME and End User Practices*. MGAIN: Mobile Entertainment Industry and Culture; IST-2001-38846; D3.2.1, p. 62 – 86.
- Motsay, Emily (2003). Black Jack rings up revenues: notably, carriers must target the youth and young adult markets in order to see positive revenue results from mobile gaming. [Electronic version] *RCR Wireless*, Jan 6, v22, i1, 10.
- New Weekly* special issue on the "Thumb tribes" of China, July 15, 2002.
- Oksman, V., & Rautiainen, P. (2002). I've got my whole life in my hand. *Revista de Estudios de Juventud*, 52, 25-32.
- Qiu (2004). *(Dis)connecting the Pearl River Delta: Transformation of a regional telecommunication infrastructure, 1978-2003*. Ph.D. dissertation. University of Southern California.
- Rheingold, Howard (2002). *Smart Mobs: The next social revolution*. Cambridge, MA: Perseus Publishing.
- Rafael, V. (2003). The cell phone and the crowd: Messianic politics in the contemporary Philippines. *Popular Culture*, 15(3): 399-425.
- Rice, R. E. and Katz, J. E. (2003). Comparing internet and mobile phone usage: Digital divides of usage, adoption, and dropouts. *Telecommunications Policy* 27, 597-623.
- Richie, Donald (2003). *The Image Factory: Fads and fashions in Japan*. Reaktion Books.
- Robbins, Kathleen, A. & Turner, Martha, A. (2002). United States: Popular, pragmatic and problematic. In J. E. Katz (Ed.), *Perpetual contact: Mobile communications, private talk, public performance* (pp.80-93). Port Chester, NY: Cambridge University Press.
- ScenarioDNA. (2004, March 31) *scenarioDNA finds a morphing structure of change for Gen Y*. Press Release. Retrieved May 20, 2004 from <http://www.scenariodna.com/newsandevents/033104.html>
- Selian, Audrey (2004). *Mobile phones and youth: A look at the US student market*. ITU/MIC Workshop on shaping the future mobile information society. Preliminary draft. Seoul, 4-5 March, 2004. Retrieved April 13, 2004 from <http://www.itu.int/osg/spu/ni/futuremobile/YouthPaper.pdf>
- Skog, B. (2002). Mobiles and the Norwegian teen: identity, gender and class. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public*

- Performance* (pp. 255-273). Cambridge, MA: Cambridge University Press.
- Smith, B. (2004). Measure of data's bottom-line effect. *Wireless Week*, May 1. Retrieved August 16, 2004 from <http://www.wirelessweek.com/article/CA414479?text=measure+of&stt=001%C3%8A>
- Smith, H., Rogers, Y. & Brady, M. (2003). *Managing one's social network: Does age make a difference?* In Proceedings of INTERACT 2003, Zurich, p. 551-558. Available at: www.cogs.susx.ac.uk/users/hilarys/papers/interact03.pdf
- Strom, G. (2002). The telephone comes to a Filipino village," in J. E. Katz and M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 274-283). Cambridge, MA: Cambridge University Press.
- Teenage Research Unlimited (February, 7, 2003). *Family life line at hand*. Press release. Retrieved June 9, 2004 from <http://www.teenresearch.com>.
- TNS (February 8, 2001) New Survey Indicates Wireless Web Penetration Highest Among Young Affluent Males. Retrieved June 4, 2004 from <http://www.tns-global.com/corporate/Doc/0/LI01IRR3DHN49E672O35E57TEA/497.htm>
- TNS (2002). *Wireless and internet adoption by consumers around the world*. Retrieved May 20, 2004 from www.tnsfres.com.
- Toral, J. (2003). *State of wireless technologies in the Philippines*. Proceedings for Closing Gaps in the Digital Divide: Regional conference on digital GMS (pp. 173-177). February 26-28, 2003. Bangkok, Thailand.
- Turchetti, D. (2004, March 28). Teens deserve credit for hot SMS market. *21 Communications*, Retrieved April 20, 2004 www.21cms.com
- Uy-Tioco, C. A.S. (2003). *The cell phone and Edsa 2: The role of communication technology in ousting a president*. Paper presented to the 4th Critical Themes In Media Studies Conference, October 11, 2003, New School University, New York.
- Valor, J. & Sieber, S. (2003?). *Uso y actitud de los jóvenes hacia internet y la telefonía móvil*. e-business Center PricewaterhouseCoopers & IESE.
- Van Impe, M. (2003). *US youth discovers SMS at last*. Nordic Wireless Watch, January 8. Retrieved June 5, 2004 from http://www.nordicwatch.com/wireless/story.html?story_id=2631
- Vershinskaya, O. (2002). Mobile communication. Use of mobile phones as a social phenomenon: The Russian experience. *Revista de Estudios de Juventud*, 52, 139-149.
- Wireless Week* (April 1, 2003). Wi-fi's gender gap. Retrieved August 16, 2004 from <http://www.wirelessweek.com/article/CA288577?spacedesc=Departments&stt=001>

Wireless World Forum. (2002) Mobileyouth2002: Sample extract. Retrieved Jun 5, 2004 from <http://www.w2forum.com>

Yankee Group (2004). *Yankee Group Estimates Youth Market Generated \$21 Billion in Carrier Revenue in 2003*. News Release February 2. Retrieved May 22, 2004 from http://www.yankeegroup.com/public/news_releases/news_release_detail.jsp?ID=PressReleases/news_02022004_wms.htm

Section 2: Statistical Sources

Europe:

Eurescom (2004). *eLiving: Life in a Digital Europe* (www.eurescom.de/e-living)

Denmark: *StatBank Denmark*. Statistics Denmark (www.dst.dk)

Finland: *Household Budgets Survey*, Statistics Finland (www.stat.fi)

Norway: *Survey on Media Use*, Statistics Norway (www.ssb.no)

Sweden: *Statistical Yearbook of Sweden 2004*, Statistics Sweden (www.scb.se)

Spain and Catalonia: *Household Information Technology Survey*, National Institute of Statistics, Spain (www.ine.es)

Asian Pacific:

Annual Statistical Report on the Development of Telecommunications in China, Ministry of Information Industry (2001).

China Statistics Yearbook (2000-2002).

Mobile subscribers in China 2002. BDA China.

Selected Electronic resources

160 characters, SMS & Mobile messaging association (UK): www.160characters.org

AECOMO. Spanish Association of Mobile Communications: www.aecomo.org

European Union and the Intelligent Transport Systems:

http://europa.eu.int/comm/research/transport/tran_trends/systems_en.html

Global Messaging Congress 2004: www.globalmessagingcongress.com

GSM, Portal devoted to GSM and wireless internet: <http://uk.gsmbox.com>

International Telecommunications Union: www.itu.int

Mobile Entertainment Forum: www.mobileentertainmentforum.org

Textually, news on SMS and MMS: www.textually.org

Wi-Fi-FreeSpot Directory. Europe: www.wififreespot.com/europe.html

Wireless World Forum: www.w2forum.com

Section 3: Analysis of Social Uses by Areas and Countries

Europe:

Agar, J. (2003). *Constant Touch: a Global History of the Mobile Phone*. UK: Icon Books.

Andersson, P., Heinonen, K. (2002). *Acceptance of Mobile Services: Insights from the Swedish market for mobile telephony*. SSE/EFI Working Paper Series in Business Administration, No 2002, 16

Booz, Allen, Hamilton (2003): MEF White Paper on Future Mobile Entertainment Scenarios. available at <http://www.m-e-f.org/>

Bluetooth virus reveals the vulnerability of the mobile phone. (August, 3, 2004) News published by Visiongain (www.visiongain.com), available at http://newsweaver.co.uk/ewirelessnews/e_article000287464.cfm?x=b3mRIKJ,b2cD3NFD

Breure, A., van Meel, J. (2003). Airport offices: facilitating nomadic workers. *Facilities* 21(7/8), 175-179.

Charlton A., & Bates C. (2000). Decline in teenage smoking with rise in mobile phone ownership: hypothesis. *British Medical Journal*, 321, 1155.

Chen, K., Miles, J. C. (Eds.) (1999). *ITS handbook, 2000: Recommendations form the World Road Association (PIARC)*. Artech House ITS Library.

Cohen, K., & Wakeford, N. (2003). *The Making of Mobility, the Making of the Self*. Retrieved January 2004 from www.soc.surrey.ac.uk/incite/AESOP%20Phase3.htm

Crabtree, J; Nathan, M; Roberts, S. (2003): *MobileUK. Mobile phones and everyday life*. [Electronic Edition] London: The Work Foundation. Available at <http://portal.acm.org/citation.cfm?doid=500292>

European Communities (2003). *Intelligent Transport Systems: Intelligence at the service of transport networks; European Comission, Energy and Transportation DG, Luxembourg* Retrieved July 2004 from http://europa.eu.int/comm/transport/themes/network/english/its/pdf/its_brochure_2003_en.pdf

Fortunati L., & Manganelli, A. M. (2002). Young People and the Mobile Telephone. *Revista de*

- Estudios de Juventud*, 52, 59-78.
- Frissen, V. (2000). ICT in the Rush Hour of Life. *The Information Society*, 16, 65-75.
- Geser, H. (2004). *Towards a Sociological Theory of Mobile Phone*, (Available at: <http://geser.net/home.html>; March 2004, Release 3.0).
- Haddon, L. (2002). Youth and Mobiles: The British Case and Further Questions. *Revista de Estudios de Juventud*, 52, 115-124.
- Harrington, V., & Mayhew, P. (2001). *Mobile Phone Theft; Home Office Research Study*, 235, 100 p. (Downloaded April 2004. Available at: www.homeoffice.gov.uk/rds/pdfs/hors235.pdf).
- Heilman, G., E. and White, D. (2003). On General Application of the Technology Acceptance Model. available at <http://mcb.unco.edu/pdfs/WPS/TAM-2.doc>.
- Katz, J., & Aakhus M. (2002). Introduction: framing the issues. In J. E. Katz and M. Aakhus (Eds.), *Perpetual Contact. Mobile Communication, Private Talk, Public Performance*. Cambridge, MA: Cambridge University Press.
- Kasesniemi, E.-L. (2003). *Mobile Messages. Young people and a New Communication Culture*. Tampere University Press.
- Kasesniemi, E.-L., & Rautiaine, P. (2002). Mobile culture of children and teenagers in Finland. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 170-192). Cambridge, MA: Cambridge University Press.
- Lacohée, H., Wakeford, N., & Pearson, I. (2003). A social history of the mobile telephone with a view of its future. *BT Technology Journal*, 21(3), 203-211.
- Lauriel, E. (2002): *The Region as a Socio-technical Accomplishment of Mobile Workers; Wireless World. Social and Interactional Aspects of the Mobile Age*; Brown, Green, Harper (Eds.); p. 46-61.
- Ling, R. (1999). *I am happiest by having the best: The adoption and rejection of mobile telephony*. R&D Report 15/99, Kjeller, Norway, Telenor.
- Ling, R. (1999b). 'We release them little by little': maturation and gender identity as seen in the use of mobile telephone. International Symposium on Technology and Society (ISTAS`99) Women and Technology: Historical, Societal and Professional Perspectives." July 29-31, 1999 Rutgers University, New Brunswick, New Jersey
- Ling, R. (2000). "We will be reached": the use of mobile telephony among Norwegian youth. *Information, Technology & People*, 102-120.
- Ling, R. (2000b). "It is "in". It doesn't matter if you need it or not, just say that you have it":

- Fashion and the domestication of the mobile telephone among teens in Norway*. Norway, Telenor.
- Ling, R. (2001). It is 'in.' It does't matter if you need it or not, just say that you have it: Fashion and the domestication of the mobile telephone among teens in Norway; Telenor.
- Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco, CA: Morgan Kaufmann Publishers.
- Ling, R.. & Haddon, L. (2001). *Mobile telephony, mobility and the coordination of everyday life*. Paper presented at the Machines that Become Us Conference, Rutgers University, April 18 and 19; 19 pages. Retrieved March 2004 from [http://www.telenor.no/fou/program/nomadiske/articles/rich/\(2001\)Mobile.pdf](http://www.telenor.no/fou/program/nomadiske/articles/rich/(2001)Mobile.pdf)
- Ling, R.; Helmersen, P. (2000) "*It must be necessary, it has to cover a need*": *The adoption of mobile telephony among pre-adolescents and adolescents*; presented at the conference on the social consequences of mobile telephony, 16 June 2000, Oslo, Norway.
- Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 139-169). Cambridge, MA: Cambridge University Press.
- Lobet-Maris, C., & Henin, J. (2002). Talking without communicating or communicating without talking: from the GSM to the SMS. *Estudios de Juventud*, 57, 101-114.
- Lorente, S. (2002). Youth and Mobile Telephones: More than a Fashion. *Revista De Estudios De Juventud*, 57, 9-24
- Mante, E. (2002). The Netherlands and the USA compared. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 110-125). Cambridge University Press.
- MGAIN (2003a): Mobile Entertainment Industry and Culture; IST-2001-38846; D3.2.1
- MGAIN (2003b): Mobile Entertainment Industry and Culture; IST-2001-38846; D4.1.1
- Moore, K. (2003). *ME and End User Practices*. MGAIN: Mobile Entertainment Industry and Culture; IST-2001-38846; D3.2.1, p. 62 – 86.
- Office for National Statistics. (2000). *Drug use, smoking and drinking among teenagers in 1999*. London: ONS
- O'Hara, K., Perry, M., Sellen, A., & Brown, B. (2002). Exploring the Relationship between the Mobile Phone and Document Activity during Business Travel. In B. Brown, and N. Green, (Eds.), *Wireless World. Social and Interactional Aspects of the Mobile Age* (pp. 180-194). Harper.

- Oksman, V., & Rautiainen, P. (2002). I've got my whole life in my hand. *Revista de Estudios de Juventud*, 52, 25-32.
- Perry, M., O'Hara, K., Sellen; A., Brown, B., & Harper, R. (2001). Dealing with Mobility: Understanding Access Anytime, Anywhere. *ACM Transactions on Computer-Human Interaction*, 8(4), 323-347.
- Skog, B. (2002). Mobiles and the Norwegian teen: identity, gender and class. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 255-273). Cambridge, MA: Cambridge University Press.
- Sherry, J., & Salvador, T. (2002). Running and Grimacing: The Struggle for Balance in Mobile Work. In Brown, Green, and Harper (Eds.), *Wireless World. Social and Interactional Aspects of the Mobile Age* (pp. 108-120). London: Springer-Verlag.
- Skeldon, P. (2003). *Adult-to-Mobile. Personal Services*. Retrieved July 2004 from www.juniperresearch.com
- Townsend, A. M. (2001): *Mobile Communications in the Twenty-first Century City*. In B. Brown, N. Green and R. Harper (Eds.). *Wireless world: Social and interactional aspects of the mobile age* (pp. 62-77). London: Springer-Verlag.
- <http://www.laflecha.net/canales/ciencia/200406161/> (News published: 06/16/2004)
- <http://www.laflecha.net/canales/moviles/200409011/> (News Published 09/01/2004)
- <http://www.diariodenavarra.es/edicionimpresa/noticiaB.asp?not=A12ART112209A&vin=&seccion=economia&dia=20040302&vf=> (News Published: 03/02/2004).
- Varbanov, V. (2002). Bulgaria: mobile phones as cultural icons. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 126-136). Cambridge, MA: Cambridge University Press.
- Watson, I., & Lightfoot, D.J. (2003). Mobile Working with Connexions. *Facilities*, 21(13/14), 347-352. (Available at www.emeraldinsight.com/0263-2772.htm)
- Wiener, S. N. (2003). *The State of Mobile Entertainment*. Business Briefing: Wireless Technology.

The United States:

- 3G Americans (no date). *Short messaging services (SMS) for success*. Retrieved May 22, 2004 from <http://www.3gamericas.org>
- Alden, J. (2002). *Competition Policy in Telecommunications: The Case of the United States of America*. ITU Workshop On Competition Policy In Telecommunications. Geneva, 20 –

- 22 November 2002. Document: CPT/05
- Associated Press*. (2003, August 1). Teen uses cell phone to foil abduction. Retrieved September 13, 2004 from <http://www.foxnews.com>
- Associated Press*. (2004, September 4). Calif. Man Accused of Stalking Via GPS. Retrieved September 7, 2004 at http://story.news.yahoo.com/news?tmpl=story&cid=528&ncid=528&e=4&u=/ap/20040905/ap_on_re_us/gps_stalking
- Atkinson, C. (2004, April 5). The biz: "Vibe," "Blender" can now dial in content. *Advertising Age* (75)14, 29.
- Beaubrun, R., & Pierre, S. (2001). Technological developments and socio-economic issues of wireless mobile communications. *Telematics and Informatics*, 18, 143-158.
- Biddlecombe, E. (2003). Wi-Fi Grows, but Profits Don't. *Wired News*, December 16. Retrieved September 5, 2004 from http://www.wired.com/news/wireless/0,1382,61618,00.html?tw=wn_story_related
- Boyle, M. (2002, November 25). Wi-Fi U.S.A. [Electronic version] *Fortune*, 146(11), 205.
- Caporael, L. R., & Xie, B. (2003). Breaking time and space: Mobil technologies and reconstituted identities. In J. E. Katz (Ed.), *The social context of personal communication technology: Machines that become us* (pp. 219-231). New Brunswick, NJ: Transaction Publishers.
- Cingular Wireless (2003). *Guys still gab more on wireless*. Cingular News Release, June 23. Retrieved August 16, 2004 from http://www.cingular.com/about/latest_news/03_06_23
- Collins, J. (2000, November 13). Talking Teenagers -- Major wireless players are finally paying attention to the youth market. *Tele.com*, p38.
- Dano, M. (2004, May 3). Wireless entertainment shortchanges women, youth. *RCR Wireless News*, 21(18), 4.
- Direct Intelligence. (2001, March). *Ethnographic study examines consumers' wireless use*.
- Dutton, W. H., Elberse, A., Hong, T., & Matei S. (2001). 'Beepless in America': The social impact of the Galaxy IV pager blackout. In S. Lax (Eds.), *Access denied in the information age*. New York: Palgrave.
- Dutton, W. H., & Nainoa, F. (2002). Say Goodbye . . . Let's Roll: The Social Dynamics of Wireless Networks on September 11. *Prometheus*, 20(3), 237-245.
- eMarketer. (March 4, 2003). *More Mobile Owners Turning to Text Messaging*. Retrieved May 22, 2004 from <http://www.upoc.com/corp/news/news-emarketer.html>

- Entner, R. (2003). *Third Quarter 2002 U.S. Wireless forecast 2000-2006*. Originally published by The Yankee Group on 25 September 2003. Retrieved May 15, 2004 from http://techupdate.zdnet.com/techupdate/stories/main/Third_Quarter_2002_US_Wireless_Forecast_2000_2006.html
- Euromonitor, (2003). *Cellular and wireless communications systems in the USA (July 2003)*. Retrieved from Market Monitor Research database.
- FCC (1999). *FCC acts to promote competition and public safety in enhanced wireless 911 services*. Press release, September 15, 1999. Available at http://www.fcc.gov/Bureaus/Wireless/News_Releases/1999/nrw19040.txt
- Felto, John (2001). Crossed wireless. *American Demographics*, 23(9), 28.
- Forbes.com Marketing (November 2002). *Wireless Phone Usage: Benchmark Study of Forbes.com Users*. Retrieved May 20, 2004 from www.pdf.forbes.com/fdc/forbes.com_wirelessurvey.pdf
- Genwireless (2001). Genwireless.com
- Georges, Carol, Carlson (2001). Wired communities and wireless communication of the new millennium. *CTBUH Review*, 1(2), 1-7.
- Grant, D., & Kielser, S. (2002). Blurring the boundaries: Cell phones, mobility and the line between work and personal life. In B. Brown, N. Green and R. Harper (Eds.), *Wireless world: Social and interactional aspects of the mobile age* (pp.121-131). London: Springer-Verlag.
- Greenspan, R. (2003a). *Wireless youth most likely to cut cord*. Retrieved June 9, 2004 from <http://www.clickz.com/stats/markets/wireles/article.php/2247081>
- Greenspan R. (May 20 2004). Mobile Phones Move Beyond Voice. Retrieved September 7, 2004 from <http://www.clickz.com/stats/markets/wireless/article.php/3356241>
- Greenspan, R. (2004, August 27). *IM usage nearly doubles*. Retrieved September 7, 2004 from <http://www.clickz.com/stats/markets/wireless/article.php/3400661>
- Hahn, R. W. & Dudley, P. M. (2002). *The disconnect between law and policy analysis: A case study of drivers and cell phones*. AEI Brookings Joint Center for Regulatory Studies Working Paper 02-7.
- Harter, B. (no date). *SMS meets the United States: Can SMS achieve the same popularity in the United States as it has overseas?* Retrieved June 5, 2004 from http://www.mbusinessdaily.com/magazine/story/new/05_smsus
- Henry Fund Research. (2003). *Wireless communications*. Retrieved August 14, 2004 from

http://www.biz.uiowa.edu/henry/Wireless_SP03.pdf

Henry Fund Research (2004). *Wireless communications*. Retrieved August 14, 2004 from http://www.biz.uiowa.edu/henry/Wireless_SP04.pdf.

Henry Fund Research – wireless SP03

Katz, J. E. (1996). The social consequences of wireless communications. In Institute for Information Studies. *The emerging world of wireless communications* (pp.91-119). Annual Review of the Institute for Information Studies. Nashville, TN: Institute for Information Studies.

Katz, J. E. (1998). The social side of information networking. [Electronic version] *Society*, 35(2), 402.

Katz, J. E. (1999). *Connections: social and cultural studies of the telephone in American life*. New Brunswick, NJ: Transaction Publishers.

Katz, J. E. (2003a). Do machines become us? In J. E. Katz (Ed.), *Machines that become us* (pp.15-25). New Brunswick, NJ: Transaction Publishers.

Katz, J. E. (2003b). Bodies, machines, and communication contexts: What is to become of us? In J. E. Katz (Ed.), *Machines that become us* (pp. 311-319). New Brunswick, NJ: Transaction Publishers.

In-Stat/MDR (February 3, 2004). *Youth Market Represents Large Opportunity for Wireless, Boost Mobile May Already Have Edge*. Retrieved June 5, 2004 from <http://www.instat.com>

In-Stat/MDR (April 19, 2004). *Mobile Data Users Now Representing the Mainstream*. Retrieved June 5, 2004 from <http://www.instat.com/press.asp?Sku=IN030933MD&ID=871>

Planet (2001, October 23). IDC U.S. Wireless Internet Forecast: 84 Million Will Connect By 2005. Retrieved May 15, 2004 from http://www.isp-planet.com/fixed_wireless/research/2001/idc_011023.html

Lasen, A. (n.d.) *The social shaping of fixed and mobile networks: A historical comparison*. Retrieved March 20, 2004 from <http://www.surrey.ac.uk/dwrc/papers/HistComp.pdf>

Lee, J. (2002, September 19). I think, therefore IM. [Electronic version] *The New York Times*. Retrieved August 17, 2004 from http://www.nytimes.com/learning/teachers/featured_articles/20020919thursday.html

Lorente S. (2002). Youth And mobile telephones: More than a fashion. *Estudios de Juventud*, 57(2), 9-24.

Maddox, K. (2003). Report predicts surge in WiFi use. *BtoB Online*, December 8. Retrieved September 5, 2004 from <http://www.btobonline.com/cgi-bin/article.pl?id=11989>

- New Media Age*. (2004).
- Medford, Cassimir (2001). The power of mobility: Wireless web access revs up productivity and efficiency at early adopters. *Network World* [Electronic version]. Retrieved May 20, 2004 from Expanded Academic ASAP database.
- Xinhuanet (2003). "Miandui 'muzhi jingji': Toushi xunsujueqi de duanxinshichang (Facing 'the thumb economy': Understanding the rapidly growing SMS market," February 24, 2003. retrieved April 20, 2004 from <http://it.sohu.com/98/87/article206578798.shtml>
- Miller, Vanessa (2003). Parking violators can get help. *Iowa City Press-Citizen*, October 28. Retrieved April 13, 2004 from <http://www.press-citizen.com/news/102803parking.html>
- Noguchi, Y. (2004, March 23). Bringing Memory to Market: Cell Phone Makers Have High Hopes for High-Definition. [Electronic version] *Washington Post*, E05. Retrieved June 10, 2004 from <http://www.washingtonpost.com>
- New Media Age*, (2004, Apr 15). Making money out of mobile: States of play. p.S.7.
- New Media Institute. (2004). *WiFi Clouds and Zones: A survey of Municipal Wireless Initiatives*. Retrieved August 30, 2004 from <http://www.nmi.uga.edu/research/WiFiCloudsZones--8-10-04.pdf>
- Newsweek* (2004 June 7). The wireless World.
<http://www.msnbc.msn.com/id/5092843/site/newsweek/>
- NOP Technology (2003). *2003 Wireless LAN benefits study*. Retrieved May 21, 2004 from www.unstrung.com
- National Telecommunications and Information Administration NTIA (2002). *A nation online: how Americans are expanding their use of the internet*. Accessed September 7, 2004 at <http://www.ntia.doc.gov>
- Palen, L. (2002). Mobile telephony in a connected life. *Communications of the ACM*, 45(3), 78-82.
- Palen, L., Salzman, M., & Youngs, E. (2000). *Going wireless: Behavior and practice of new mobile phone users*. Proceedings of the ACM Conference on Computer Supported Cooperative Work (CSCW 2000), Philadelphia, PA, pp. 201-210. Retrieved September 19, 2004 from www.cs.colorado.edu/~palen/Papers/cscwPalen.pdf
- Pastore, M. (2001). *Wireless aims for widespread appeal*. ClickZ Stats, February 13, 2003. Retrieved August 16, 2004 from <http://www.clickz.com/stats/markets/wireless/article.php/587701>
- Pelofsky, Jeremy (Sep 3, 2004). *Pace for Wireless Number Switches Quickens*. Accessed

- September 7, 2004 at
<http://www.reuters.com/newsArticle.jhtml?type=technologyNews&storyID=6149398>
- Perlin, N. (2003). Operating at the edge of technology. *Technical Communication* 50(1), 13-16.
- Pew Internet and American Life Project. (2002, September 15,). *The Internet Goes to College How students are living in the future with today's technology*. Available at
<http://www.pewinternet.org>
- Pew Internet & American Life Project (2002, October). *October 2002 tracking survey*. By Princeton Survey Research Associates. Available at <http://www.pewinternet.org>
- Pew Internet & American Life Project (2004, May). *Pew Internet Project Data Memo 28% of American adults are wireless ready*. Available at <http://www.pewinternet.org>
- Pew Internet & American Life Project April (2004, p.3). *55% of adult internet users have broadband at home or work*. Pew Internet Project Data Memo. Available at
<http://www.pewinternet.org>
- Plant, Sadie (n.d.). *On the mobile: the effects of mobile phones on social and individual life*. Retrieved May 20, 2004 from www.motorola.com/mot/doc/0/234_MotDoc.pdf
- Reuters. (2002, August 28). *U.S. wireless Internet users reach 10 mln – survey*
http://wirelessreview.com/ar/telecom_us_wireless_internet/ as retrieved on Sep 2, 2004
- Revolution*. (2003). Comment: Educating Americans on the benefits of SMS. December 1, p.25
- Rodgers, Z. (2004). *Fans text to American Idol in record numbers*. ClickZ Internet, June 4.
 Retrieved June 9, 2004 from <http://www.clickz.com/news/article.php/3364031>
- Rodini, M., Ward, R. R., & Woroch, G. A. (2003). Going mobile: Substitutability between fixed and mobile access. *Telecommunications Policy*, 27, 457- 476.
- Robbins, Kathleen, A. & Turner, Martha, A. (2002). United States: Popular, pragmatic and problematic. In J. E. Katz (Ed.), *Perpetual contact: Mobile communications, private talk, public performance* (pp.80-93). Port Chester, NY: Cambridge University Press.
- Selian, Audrey (2004). *Mobile phones and youth: A look at the US student market*. ITU/MIC Workshop on shaping the future mobile information society. Preliminary draft. Seoul, 4-5 March, 2004. Retrieved April 13, 2004 from
<http://www.itu.int/osg/spu/ni/futuremobile/YouthPaper.pdf>
- Sharma, C., & Nakamura, Y. (2003). *Wireless data services: Technologies, business models and global markets*. Cambridge, MA: Cambridge University Press.
- Sherry, John & Salvador, Tony (2002). Running and grimacing: The struggle for balance in mobile work. In B. Brown, N. Green and R. Harper (Eds.). *Wireless world: Social and*

- interactional aspects of the mobile age* (pp.108-120). London: Springer-Verlag.
- Srivastava, L. (2004). *Social and human considerations for a more mobile world*. Background paper. ITU/MIC Workshop On Shaping The Future Mobile Information Society, Seoul, 4-5 March 2004. Document: SMIS/04. Available at <http://www.itu.int>
- Standard and Poor's (2004). *Industry surveys telecommunications: Wireless*. Retrieved September 19, 2004 from http://www.marshall.usc.edu/ctm/Executive%20Education%20files/AMPT/AMPT%20Materials/September%2011-17,%202004/Telecommunications_%20Wireless_9_04.pdf
- Sundgot, Jorgen (2003). More mobile minutes in the US. Retrieved from <http://www.infosyncworld.com/news/n/3571.html>
- TNS (2001, February 8). *New Survey Indicates Wireless Web Penetration Highest Among Young Affluent Males*. Retrieved May 20, 2004 from <http://www.tns-global.com>
- Trujillo, M. (2003, March 7). Abbreviated phraseology – Linguists divided on cell phone messages. *Associated Press*. Retrieved May 21, 2004 from http://www.upoc.com/corp/news/UpocAP_2.pdf
- The Economist* (October 13, 2001). A different way of working [Electronic version]. Retrieved September 19, 2004 from http://www.economist.com/surveys/displayStory.cfm?Story_id=812006
- Vilano, M. (2003, November 21). *Wi-Fi Is Hot But Users Still Warming to It*. Retrieved August 20 from <http://www.clickz.com/stats/markets/wireless/article.php/3112271>
- Wei, R. (2004). *Expanding the Horizon: Using the Cellphone as a Mass Medium*. Paper submitted to the Technology Division of ICA for review and consideration for presentation at the 2004 Convention in New Orleans.
- Wilson, S. (2003, March 20). *Generation Y provides wireless potential*. Retrieved June 5, 2004 from <http://www.imediaconnection.com/content/2570.asp>
- Wilson, S. (2003, August 18). *Youth play significant role in wireless*. Retrieved May 2004 from <http://www.imediaconnection.com/news/1952.asp>
- Yu, L., Sacher, H., & Loudon G. (2002). Buddysync: thinking beyond cell phones to create a Third-generation wireless application for U.S. teenagers. *Estudios de Juventud*, 57(2), 173-188.

The Asian Pacific:

“2004 Jyohou Hakyusho (2004 White Paper),” Japan Ministry of Public Management, Home Affairs, Post and Telecommunications (MPMHPT)

Alford, C. F. (1999). *Think no evil: Korean values in the age of globalization*. London: Cornell University Press.

Arnold, W. (2000). Manila’s talk of town is mobile. *The New York Times*, July 5. Retrieved June 5, 2004 from <http://partners.nytimes.com/library/tech/00/07/biztech/articles/05talk.html>

Chen, K., & Ramstad, E. (2004, April 23). To steer tech market China touts own standards. *Asian Wall Street Journal*.

Barnes, S. and Huff, S. (2003). Rising Sun: I-mode and the wireless Internet. *Communications of the ACM*, 46(11), 79-84.

BBC News (2003). “Phone Users Become Picture Savvy.” February 12, 2003.

<http://news.bbc.co.uk/1/hi/business/2752113.stm> (April 6, 2004).

Berniker, M. (2004, April 28). China tempers 3G expectations. *EWeek*. Retrieved May 5, 2004 from http://www.eweek.com/print_archive/0,1761,a=125605,00.asp

Bociurkiw, Michael (2001). “Revolution by cell phone,” *Forbes*. September 10, 2001. p. 28.

Brown, B., Green, N., & Harper, R. (Eds.) (2002). *Wireless World: Social and interactional aspects of the mobile age*. London: Springer-Verlag.

Cell Phone gains 53 million yuan at box office. Xinhua Net.

Chang, S.-J. (2003). The Internet economy of Korea. In B. Kogut (Ed.), *The global Internet economy* (pp. 262-289). Cambridge, MA: The MIT Press.

China reaches 50 million PAS subscribers. PR Newswire.

Cut-price ‘Little Smart’ a big hit in China. *China Daily*.

Divorce filed after discovering flirting SMS. Qianlong News.

Enos, J. (undated). Three Advertising Agencies Find Success in Wireless Campaigns for Some Big Players.]Retrieved February 26, 2004 from *mBusiness Daily*,

www.mbusinessdaily.com/magazine/story/06_japan

Frost & Sullivan (2003). *The ‘PAS’ Phenomenon: Revolutionizing Local Wireless Telephony*. Frost & Sullivan White Papers. February 2003.

Gottlieb, N., & McLelland, M. (2003). The Internet in Japan. In N. Gottlieb and M. McLelland (Eds.), *Japanese Cybercultures* (pp. 1-16). New York: Routledge.

Ha, J-Y. (2002). Diffusion of the use of cell phones as internal office phones (in Korean).

- Joongang Ilbo*, January 16. Available at:
http://news.naver.com/news/read.php?mode=LOD&office_id=025&article_id=0000434286
 (accessed on March 3, 2004).
- Hachigian, N. and Wu, L. (2003). *The Information Revolution in Asia*. RAND Corporation.
- Hale, D., & Hale, L. H. (2003). China takes off. *Foreign Affairs*, November/December, 82(6), 36-53.
- Han, K.-S. (2001, May 2). Integrated corporate wired and wireless VPN services (in Korean). *Hankook Ilbo* (in Korean). Retrieved March 3, 2004 from
http://news.naver.com/news/read.php?mode=LOD&office_id=038&article_id=0000069130
- Hashimoto, K., Y. Hashimoto, K. Ishii, I. Nakamura, R. Korenaga, D. Tsuji and Y. Mori, (2000). Survey research on uses of cellular phones and other communication media in 1999. *The Research Bulletin of the Institute of Socio-Information and Communication Studies*, 14, 83–192 (in Japanese).
- Hjorth, L. (2003). “Cute@keitai.com” In N. Gottlieb and M. McLelland (Eds.), *Japanese Cybercultures*. (pp. 50-59). New York: Routledge.
- Holden, T. J.M. and Tsuruki, T. (2003). Deai-kei: Japan’s new culture of encounter. In N. Gottlieb, and M. McLelland (Eds). *Japanese Cybercultures* (pp. 34-49). New York: Routledge.
- Hui, Y-m. (2004). State Council plans to merge carriers. *South China Morning Post*, July 6.
- Kuo, K. (2003). Little Smart ‘cell’ phone very, very smart in China. *Asia Times*, Available:
<http://www.atimes.com> (accessed on May 5, 2004)
- Ishii, K. (2004). Internet Use Via Mobile Phone in Japan. *Telecommunications Policy*, 28(1), 43-58.
- Ito, M. (2003a). “A new set of social rules for a newly wireless society.” *Japan Media Review*.
<http://www.ojr.org/japan/wireless/1043770650.php> (February 24, 2004).
- Ito, M. (2004). *Personal, Portable, Pedestrian: mobile phones in Japanese life*. The Southern California Digital Culture Group. Los Angeles: Annenberg Center for Communication.
- Ito, M., & Okabe, D. (2003). *Mobile Phones, Japanese Youth, and the Re-Placement of Social Contact*. Paper presented at the conference “Front stage - back stage: mobile communication and the renegotiation of the public sphere.” Grimstad, Norway.
- Ito, M., & Daisuke, O. (forthcoming). *Technosocial Situations: Emergent structurings of mobile email use*.
- ITU (2001). *3G Mobile Policy: The case of Japan*. <http://www.itu.int/3g> (March 29, 2004).
- ITU Internet Reports (2002). *Internet for a Mobile Generation*.
- Kageyama, Y. (2003). Camera-Equipped Phones Spread Mischief. *The Associated Press*. July 9.

- Kim, H.-J., Byun, S.-K., and Park, M.-C. (2004). Mobile handset subsidy policy in Korea: Historical analysis and evaluation. *Telecommunications Policy*, 28, 23-42.
- Kim, D.-Y. (2002). The politics of market liberalization: A comparative study of the South Korean and Philippine telecommunications service industries. *Contemporary Southeast Asia*, 24 (2): 337-370.
- Kim, K.-D. (1993). *Han'guk sahoe pyondongnon* [Korean social change]. Seoul: Nanam.
- Kim, S.-D. (2002). Korea: Personal meanings. In J. E. Katz and M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 63-79). Cambridge University Press.
- Kim, J.-M. (2001). "Caught in a political Net," *Far Eastern Economic Review*. November 1. pp. 49-50.
- Kodama, M. (2002). Transforming an Old Economy Company into a New Economy Success: The case of NTT DoCoMo. *Leadership and Organization Development Journal*, 23(1/2), 26-39.
- Kodama, M. (2003). Strategic Community-Based Theory of Firms: Case study of NTT DoCoMo. *Journal of High Technology Management Research*. 14(2), 307-3xx.
- Kogawa, T. (undated). Beyond electronic individualism. <http://anarchy.k2.tku.ac.jp/non-japanese/electro.html> (April 6, 2004).
- KISDI Report (2003). *Analyses of consumer expenditures for and using patterns of IT commodities and services* (in Korean). Kyunggido: Korea Information Strategy Development Institute.
- Larimer, T. (2000). What Makes DoCoMo Go. *Time*. November 27, 50-4.
- Lee, Y.-Y., Park, Y.-T., & Oh, H.-S. (2000). The impact of competition on the efficiency of public enterprise: The case of Korea Telecom. *Asia Pacific Journal of Management*, 17, 423-442.
- Lei, Z. (2002). Ordinary beginning reveals three problems in the telecom industry. *Telecom Information Daily*, March 6, 2002. Available: <http://tech.sina.com.cn/it/t/2002-03-06/105429.shtml> (accessed on June 30, 2004).
- Li, X. (2002). After restructuring, China Telecom urgently needs to improve competitiveness. *Telecom Information Daily*, March 6, 2002. Available: <http://tech.sina.com.cn/it/t/2002-03-06/105430.shtml> (accessed on June 30, 2004).
- Lightman (2002, pp. 268-298). Lightman, Alex and Rojas, William (2002). *Brave New Unwired World: The digital big bang and the infinite Internet*. New York: John Wiley & Sons, Inc.

- Lindgren, M., Jedbratt, J., & Svensson, E. (2002). *Beyond Mobile: People, communications and marketing in a mobilized world*. London: Palgrave.
- Lipp, J. (2003). M-Commerce in Korea. *MFC Insight*. April, 18, 2003.
- Liu, M. (2003). *Little Smart handset market heats up*. Telecomasia.net. Retrieved May 5, 2004 from <http://www.telecomasia.net/telecomasia/article/articleDetail.jsp?id=88183>
- Liu, H. (2004). *Research on Market Dynamics of Little Smart in China*, TeleInfo Institute, China Academy of Telecommunications Research of MII, March 2004.
- McGray, D. (2002). Japan's Gross National Cool. *Foreign Policy*. May/June 2002, 44-54.
- McVeigh, B. J. (2003). Individualization, Individuality, Interiority, and the Internet: Japanese university students and e-mail. In N. Gottlieb and M. McLelland (Eds.), *Japanese Cybercultures* (pp. 19-33). New York: Routledge.
- MIC Report (2003). *Annual report of electronics and telecommunications in 2003* (in Korean). Ministry of Information and Communication. Seoul, Korea.
- Mitchell, W. (2003). *Me++: The cyborg self and the networked city*. Cambridge, MA: MIT Press.
- Mobile subscribers in China 2002*. BDA China. Available: http://www.bdachina.com/content/research/reports/mobile_subscribers/en (accessed on November 7, 2003).
- Nagamine, Y. (2001, July 13). Isolation Fears Lead to Phone Addiction. *Daily Yomiuri*. p. 6.
- Daisuke, O. and Ito, M. (2003). Camera Phones Changing the Definition of Picture-Worthy. *Japan Media Review*. www.ojr.org/japan/wireless/1062208524p.php (April, 5, 2004).
- Park, H.-Y. and Chang, S.-G. (2004). Mobile network evolution toward IMT-2000 in Korea: A techno-economic analysis. *Telecommunications Policy*, 28, 177-196.
- Rafael, V. (2003). The cell phone and the crowd: Messianic politics in the contemporary Philippines. *Popular Culture*, 15(3): 399-425.
- Rheingold, Howard (2002). *Smart Mobs: The next social revolution*. Cambridge, MA: Perseus Publishing.
- SK Telecom dominates mobile phone market (in Korean). *Digital Times*.
- Sohu-lingdian diaocha* (Sohu-Horizon Survey) (October 2003). Retrieved June 30, 2004 from <http://it.sohu.com/2004/02/19/96/article219129623.shtml>
- Stocker, T. (2000, October 3). The Future at Your Fingertip. Retrieved April 2, 2004 from http://www.tkai.com/press/001004_Independent.htm
- The dream team of UTStarcom. *Global Entrepreneur*.
- Tsuji, D. and Mikami, S. (2001). A preliminary student survey on the e-mail uses by mobile

- phones. *Paper presented at JSICR*, June, 2001: Tokyo
- UTStarcom. *China Telecom case study*.
- Yang, (2003); "Information Ministry plans 'Ubiquitous Korea' by 2007," *Korea Times*.
- Yang, H.-D., Yoo, Y.-J., Lyytinen, K., & Ahn, J.-H. (2003). *Diffusion of broadband mobile services in Korea: The role of standards and its impact on diffusion of complex technology system*. Unpublished manuscript. Retrieved June 21, 2004 from <http://weatherhead.cwru.edu/pervasive/Paper/UBE%202003%20-%20Yoo.pdf>
- Yoon, K.-W. (2003a). *Youth sociality and globalization: An ethnographic study of young Koreans' mobile phone use*, Ph.D. dissertation, The University of Birmingham, U.K.
- Yoon, K.-W. (2003b). "Retraditionalizing the mobile: Young people's sociality and mobile phone use in Seoul, South Korea," *European Journal of Cultural Studies*, 6 (3): 327-343.
- Zhang, L. (2002). *Strangers in the City*. Stanford University Press.
- Zhao, J. (2002, March 28). Why MNCs are so enthusiastic about China? *Economic Daily*. Retrieved June 30, 2004 <http://business.sohu.com/29/60/article200436029.shtml>
- Zhao Y. (2004). Between a world summit and a Chinese movie: Visions of the 'information society'. *Gazette*, 66(3-4), 275-280.

Section 3: Statistical Sources

- Denmark: StatBank Denmark. (www.dst.dk).
- France: Permanent Survey of Household Life Conditions; National Institute of Statistics. (www.insee.fr).
- Germany: Survey of Income and Expenditure, Federal Statistical Office (www.destatis.de).
- Finland: Household Budgets Survey (www.stat.fi).
- Norway: Survey on Media Use (www.ssb.no).
- Spain and Catalonia: Household Information Technology Survey, National Institute of Statistics (www.ine.es).
- Spanish Association of Mobile Communications webpage (www.aecom.org).
- Sweden: Statistical Yearbook of Sweden 2004 (www.scb.se).
- UK: Consumers' Use of Mobile Telephony Survey, Office of Telecommunications (www.ofcom.org.gov).
- Family Expenditure Survey. (www.statistics.gov.uk).

<http://www.textually.org/textually/archives/002427.htm>.

<http://www.nodedb.com/europe/>

<http://www.nodedb.com/europe/> (September, 2004).

<http://iblnews.es/noticias/05/107107.html>; (Published: 05/07/2004);

http://www.consumer.es/web/es/noticias/nuevas_tecnologias/2004/05/06/99675.php (Published: 06/07/2004)

US: *FCC annual reports: Industry Analysis and Technology Division Wireline Competition Bureau May 2004*. Available at www.fcc.gov/web/stats.

Section 4: *The Mobile Youth Culture in Cross-Cultural Perspective*

Agar, J. (2003). *Constant Touch: a Global History of the Mobile Phone*. UK: Icon Books.

Andersson, P., & Heinonen, K. (2002). *Acceptance of Mobile Services: Insights from the Swedish market for mobile telephony*; SSE/EFI Working Paper Series in Business Administration, No 2002:16.

Beck, U. (1992). *Risk Society Towards a New Modernity*. Sage Publications. London: Newbury Park.

Castells, M. (2000). *The Rise of the Network Society*. 2nd Edition. London: Edward Elgar.

Castells, M., Editor (2004): *The Network Society: a Global Perspective*. London: Edward Elgar. (forthcoming)

Castells, Tubella et al, (2003). *La Societat Xarxa a Catalunya*. Rosa dels Vents & Open University of Catalonia. Barcelona.

Capra, F. (2002). *The Hidden Connections: Integrating the biological, cognitive, and social dimensions of life into a science of sustainability*. New York: Random House

Cohen, K., & Wakeford, N. (2003). *The Making of Mobility, the Making of the Self*. Retrieved January 2004 from www.soc.surrey.ac.uk/incite/AESOP%20Phase3.htm

Continental Research (2001): Mobile Phone. July 2001 (www.continentalresearch.com).

Eurescom (2001). ICT Uses in Everyday Life: Checking it out with the people – ICT markets and users in Europe. Confidential EURESCOM P903 Project Report elaborated by Mante-Meijer, E., Haddon, L., et al, EDIN0161-0903.

Fortunati, L. (2002). Italy: stereotypes, true and false. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 42-62). Cambridge, MA: Cambridge University Press.

Fortunati L., & Manganelli, A. M. (2002). Young People and the Mobile Telephone. *Revista de Estudios de Juventud*, 52, 59-78.

- Fox, K. (2001). *Evolution, Alienation and Gossip. The role of mobile communications in the 21st century*. Retrieved March 2004 from www.sirc.org/publik/gossip.shtml
- Frissen, V. (2000). ICT in the Rush Hour of Life. *The Information Society*, 16, 65-75.
- Gillard, et al, (1996). *Ladies and Gentlemen, Boys and Girls: Gender and telecommunication services*. Telecommunications Needs Service, Melbourne.
- Goggin, G. (2004). Mobile text. *M/C: A Journal of Media and Culture*, 7.
<http://www.media-culture.org.au/0401/03-goggin.html>; January 12.
- Grenville, M. (2004): *Operators: Orange France Cuts SMS Pricing*; published at www.160characters.org on 27/01/2004. Retrieved July 2004 from <http://www.160characters.org/news.php?action=view&nid=914>
- Grinter, R.E.; Eldridge, M. (2001): *y do tngrs luv 2 txt msg?*. In Prinz et al. (Eds.), *Proceedings of the Seventh European Conference on Computer-Supported Cooperative Work ECSCW'01*, Kluwer Academic Publishers, p. 219-238.
- Haddon, L. (2002). Youth and Mobiles: The British Case and Further Questions. *Revista de Estudios de Juventud*, 52, 115-124.
- Himanen, P. (2001). *The Hacker Ethic and the Spirit of the Information Age*. London: Secker & Warburg.
- Höflich, J., & Rössler, P. (2002). More than JUST a telephone: The Mobile Phone and Use of the Short Message Service (SMS) by German Adolescents: Results of a Pilot Study. *Revista de Estudios de Juventud*, 52, 79-100.
- Katz, J., & Aakhus M. (2002). Introduction: framing the issues. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp.). Cambridge, MA: Cambridge University Press.
- Katz, J. E., Rice, R.E, & Katz, J. E (2002). *Social Consequences of Internet Use: Access, Involvement, and Interaction*. MIT Press.
- Kasesniemi, E.-L. (2003). *Mobile Messages. Young people and a New Communication Culture*. Tampere University Press.
- Kasesniemi, E.-L., & Rautiaine, P. (2002). Mobile culture of children and teenagers in Finland. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 170-192). Cambridge, MA: Cambridge University Press.
- Lacohée, H., Wakeford, N., & Pearson, I. (2003). A social history of the mobile telephone with a view of its future. *BT Technology Journal*, 21(3), 203-211.
- Ling, R. (2000). "We will be reached": the use of mobile telephony among Norwegian youth.

- Information, *Technology & People*, 102-120.
- Ling, R. (2001). It is 'in.' It does't matter if you need it or not, just say that you have it: Fashion and the domestication of the mobile telephone among teens in Norway; Telenor.
- Ling, R. (2002). Adolescent girls and young adult men: Two sub-cultures of the mobile telephone. *Revista de Estudios de Juventud*, 52, 33-46.
- Ling, R. (2004). *The mobile connection: The cell phone's impact on society*. San Francisco, CA: Morgan Kaufmann Publishers.
- Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 139-169). Cambridge, MA: Cambridge University Press.
- Lobet-Maris, C., & Henin, J. (2002). Talking without communicating or communicating without talking: from the GSM to the SMS; *Estudios de Juventud*, 57, 101-114.
- Lorente, S. (2002). Youth and Mobile Telephones: More than a Fashion. *Revista De Estudios De Juventud*, 57, 9-24
- Moore, K. (2003). *ME and End User Practices*. MGAIN: Mobile Entertainment Industry and Culture; IST-2001-38846; D3.2.1; p. 62 – 86.
- O'Hara, K., Perry, M., Sellen, A., & Brown, B. (2002). Exploring the Relationship between the Mobile Phone and Document Activity during Business Travel. In B. Brown, and N. Green, (Eds.), *Wireless World. Social and Interactional Aspects of the Mobile Age* (pp. 180-194). Harper.
- Oksman, V., & Rautiainen, P. (2002). I've got my whole life in my hand. *Revista de Estudios de Juventud*, 52, 25-32.
- Puro, J.- P. (2002). Finland: a mobile culture. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 19-29). Cambridge, MA: Cambridge University Press.
- Reinhardt, A., Bonnet, A., & Crockett, R.O. (2004, May 31). Can Nokia get the Wow Back? *Business Week*, 18-22.
- Rule, J. B. (2002): *From mass society to perpetual contact: models of communication technologies in social context*; *Perpetual Contact. Mobile Communications, Private Talk, Public Performance*; edited by J.E. Katz and A. Aakhus; Cambridge University Press; p. 94-109.
- Skog, B. (2002). Mobiles and the Norwegian teen: identity, gender and class. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 255-273). Cambridge, MA: Cambridge University Press.

- Smith, H., Rogers, Y. & Brady, M. (2003). *Managing one's social network: Does age make a difference?* In Proceedings of INTERACT 2003, Zurich, pp. 551-558. Available at: www.cogs.susx.ac.uk/users/hilarys/papers/interact03.pdf
- Weilenmann, A., & Larson, C. (2002). Local Uses and Sharing of Mobile Phones. In B. Brown, N. Green and Harper, R. (Eds.), *Wireless World: Social and Interactional Aspects of the Mobile Age* (pp. 92-107). New York: Springer.
- Wellman, B.; Haythornthwaite, C. (2002): *The Internet in Everyday Life (The Information Age)*. Blackwell Publishers
- Oksman, V., & Rautiainen, P. (2002). I've got my whole life in my hand. *Revista de Estudios de Juventud*, 52, 25-32.
- Valor, J. & Sieber, S. (2003). *Uso y actitud de los jóvenes hacia internet y la telefonía móvil*. e-business Center PricewaterhouseCoopers & IESE.
- Vershinskaya, O. (2002). Mobile communication. Use of mobile phones as a social phenomenon: The Russian experience. *Revista de Estudios de Juventud*, 52, 139-149.

The United States:

- Anfuso, D. (2002, April 22). *Cell phone usage continues to rise*. Retrieved June 4, 2004 from <http://www.imediaconnection.com/news/581.asp>
- Anfuso, D. (2003, September 8). *Study shows buying power of youth*. Retrieved June 4, 2004 from <http://www.imediaconnection.com/news/1958.asp>
- Arnett, Jeffrey Jensen (1995). Adolescent's uses of media for self-socialization. *Journal of Youth and Adolescence*, 24(5), 519- 533.
- Batista, E. (2003). She's Gotta Have It: Cell Phone. *Wired News*, May 3. Retrieved July 2, 2004 from <http://www.wired.com/news/culture/0,1284,58861,00.html>
- Bautsch, H., Granger, J., Karnjate, T., Khan, F., Leveston, Z., Niehus, G. et al. (2001). *An investigation of mobile phone use: A socio-technical approach*. Retrieved March 20, 2004 from http://www.cae.wisc.edu/~granger/IE449/IE449_0108.pdf
- Buckingham, D., Davies, H., Jones, K., & Kelley, P. (1999). *Children's television in Britain*. London: BFI.
- Coburn, J. (2004). State Senate OKs Restricting Teenage Cell Phone Use. *The Daily Californian*, June 1. Retrieved June 30, 2004 from <http://www.dailycal.org/article.asp?=15385>
- Collins, J. (2000). Talking Teenagers -- Major wireless players are finally paying attention to

- the youth market. *Tele.com Nov 13*, p38.
- Credit Card Management* (2002). Youth must be served. October, 50-53.
- Dano, M. (2004). Wireless entertainment shortchanges women, youth. *RCR Wireless News, May 3, 21(18)*, 4.
- Holmes, D., & Russell, G. (1999). Adolescent CIT use: Paradigm shifts for educational and cultural practices? *British Journal of Sociology of Education*, 20(1), 69-78.
- Demars, T. R. (2000). *Modeling behavior from images of reality in television narratives: myth-information and socialization*. Lewiston, NY: Edwin Mellen.
- Dunlap, K. (2002). Calling all teens: Wireless carriers target youths. *Mercury News* Posted on Sat, Jun. 15 at Silicon Valley.com. Retrieved June 30, 2004 from <http://www.siliconvalley.com/mld/siliconvalley/3480214.htm>
- Elkin, T. (2003). *18% would rather give up tvs than wireless phones. New Study Tracks Growing Use of Short Message Service*. Retrieved May 22, 2004 <http://www.upoc.com/corp/news/news-adage.html>
- Fattah, H. (2003). America Untethered. [Electronic version] *American Demographics*, March 1. Retrieved May 21, 2004 from - <http://www.upoc.com/corp/news/UpocAmDem.pdf>
- Fischer, L. (2002, April, 30). A cell phone that's hip enough for teens. *USA Today*. Retrieved June 6, 2004 from <http://www.usatoday.com/tech/columnist/2002/04/30/fischer.htm>
- Fitchard, K. (2002, March 1). The next tycoon of teen. *Wireless Review*. Retrieved September 18, 2004 from http://wirelessreview.com/ar/wireless_next_tycoon_teen/
- Henry Fund Research. (2003). Retrieved August 14 from http://www.biz.uiowa.edu/henry/Wireless_SP03.pdf
- Henry Fund Research. (2004). Retrieved August 14 from http://www.biz.uiowa.edu/henry/Wireless_SP04.pdf
- Horrigan (2003). *Consumption of information goods and services in the United States*. Pew Internet and American Life Project. Retrieved May 20 from <http://www.pewinternet.org>
- IDC (2003). *U.S. Youth/Young Adult Wireless Subscriber Forecast, 2002-2007: In Search of the Perfect Storm*. Retrieved June 5, 2004 from <http://www.idc.com/getdoc.jsp?containerId=29822>.
- In-Stat/MDR (February 3, 2004). Youth Market Represents Large Opportunity for Wireless, Boost Mobile May Already Have Edge. Retrieved June 5, 2004 from <http://www.instat.com>
- In.Stat MDR (April 19, 2004). Mobile Data Users Now Representing the Mainstream. Retrieved

- June 5, 2004 from <http://www.instat.com/press.asp?Sku=IN030933MD&ID=871>
- Lee, J. (2002). Tailoring cellphones for teenagers. *The New York Times*, May 30.
Retrieved June 9, 2004 from <http://www.teenreserch.com>
- Lewis, W. (n.d.). Making the mobile channel work for your youth brand. Retrieved July 7, 2004 from <http://www.mobileyouth.org/news/mobileyouth590.html>
- Luna, L. (2002, August.). Party animals, supermodels, and naked knights. *Wireless Review*, pp.20-29.
- Mack, A. M. (2003, October 13). Verizon seeks new way to woo teens. *Adweek*, p.13.
- Mader, B. (2003, February 28). Prepaid wireless phones a hit in youth market. *Business First of Columbus*. Posted March 3, 2003. Retrieved June 26, 2004 from <http://columbus.bizjournals.com/columbus/stories/2003/03/03/focus3.html>
- Marek, S. (2004). Raising the bar on ringtones. *Wireless Week*, May 15. Retrieved August 14, 2004 from <http://www.wirelessweek.com>
- Meyer, D. (2002). Carriers target youth market via prepaid, unlimited local plans. [Electronic version] *RCR Wireless News*. Retrieved from Infotrac database, <http://www.infotrac.com>
- MobileVillage. (2003, May 7). *Poll: Those who don't own mobile phones cite cost barriers*. Retrieved June 6, 2004 from <http://www.mobilevillage.com/news/2003.05.09/cellphone-poll.htm>
- Motsay, Emily (2003). Black Jack rings up revenues: notably, carriers must target the youth and young adult markets in order to see positive revenue results from mobile gaming. [Electronic version] *RCR Wireless*, Jan 6, v22, i1, 10.
- Noguchi, Y. (2004, April 29). Cell Carriers Tap Teen Market. *The Washington Post* Retrieved July 2, 2004 from <http://www.registerguard.com/news/2004/04/29/a1.nat.teenphones.0429.html>
- Noticiaswire. (n. d.). *Teens and the cell phone connection: Verizon wireless offers helpful tips for parents*. Retrieved June 6, 2004 from http://www.noticiaswire.com/consumer_news/verizon/
- OECD. (2003). *Mobile Phones: Pricing Structures and Trends*. Retrieved May 14, 2004 from <http://www.sourceoecd.org>
- Petroff, P. (2002). Teens want mEverything—But at what price? *Wireless Week*, April 22.
Retrieved June 6, 2004 from <http://www.wirelessweek.com>
- Rockhold, J. (2001, May 15). Cell phones are, like, cool. [Electronic version] *Wireless Review*, 18, 28-30. Retrieved June 4, 2004 from <http://www.wirelessreview.com>
- Ryan, V. (2000). Youth movement: Marketing wireless to the teen crowd. *Telephony*, June 26.

- Retrieved June 5, 2004 from
http://telephonyonline.com/ar/telecom_youth_movement_marketing/
- Sandvig, C. (2003). Public Internet Access for Young Children in the Inner City: Evidence to Inform Access Subsidy and Content Regulation. *The Information Society*, 19,171–183
- Schiano, D., C. Chen, J. Ginsberg, U. Gretarsdottir, M. Huddleston, and Isaacs, E. (2002). Teen Use of Messaging Media. In *Extended Abstracts of CHI 2002*, pp. 594-595. Retrieved June 30, 2004 from <http://home.comcast.net/~diane.schiano/CHI2002.short.ttalk.pdf>
- Schwartz, Ephraim (2002). For the children. *Infoworld*, August 26, p.28. From www.infoworld.com
- Selian, Audrey (2004). *Mobile phones and youth: A look at the US student market*. ITU/MIC Workshop on shaping the future mobile information society. Preliminary draft. Seoul, 4-5 March, 2004. Retrieved April 13, 2004 from <http://www.itu.int/osg/spu/ni/futuremobile/YouthPaper.pdf>
- Selingo, J. (2004). Hey kid, your backpack is ringing. *The New York Times*, March 18, G1.
- Sewell, C. (2002, June 1). Understand That You Will Never Understand. (Cingular Wireless' youth marketing strategy). [Electronic version] *Wireless Review*.
- Smith, B. (2004). Personalization: Bigger than games? *Wireless Week*, January 15. Retrieved June 6, 2004 from <http://www.wirelessweek.com/article/CA374733>
- Sefton-Green, J. (1998). Being young in the digital age. In J. Sefton-Green (Ed.), *Digital diversions: Youth culture in the age of multimedia* (pp.1-20). London: UCL Press.
- Srivastava, L. (2004). *Social and human considerations for a more mobile world*. ITU/MIC Workshop On Shaping The Future Mobile Information Society, Seoul, 4-5 March. Document: SMIS/04. Available at <http://www.itu.int>
- Standard and Poor's (2004). *Industry surveys telecommunications: Wireless*. Retrieved September 19, 2004 from http://www.marshall.usc.edu/ctm/Executive%20Education%20files/AMPT/AMPT%20Materials/September%2011-17,%202004/Telecommunications_%20Wireless_9_04.pdf
- Tan, S. (2001). Wireless text gains appeal. [Electronic version] *Miami Herald*, June 26. Retrieved June 6, 2004 from www.upoc.com/corp/MiamiHerald.pdf
- Tedeschi, B. (2004). The ring tone business looks good to record companies – but a do-it-yourself program may cut the profits short. *The New York Times*, February 23, C5.
- Teenage Research Unlimited (October, 18, 2000). *Teens serious in quest for fun*. Press release. Retrieved June 9, 2004 from <http://www.teenresearch.com>.

- Teenage Research Unlimited (February, 7, 2003). *Family life line at hand*. Press release.
Retrieved June 9, 2004 from <http://www.teenresearch.com>.
- Teenage Research Unlimited (January, 9, 2004). *Teens pent \$175 billion in 2003*. Press release.
Retrieved June 9, 2004 from <http://www.teenresearch.com>.
- TNS (May 23, 2002). *Report of 30-Nation Study Indicates Meeting and Creating Information Needs of Young and Upscale Consumers Can Be Instrumental to Growth of Wireless Internet*.
Retrieved June 4, 2004 from <http://www.tns-global.com/corporate/Doc/0/E0LL1FUNNGFK3F05C9NJULKP62/586.htm>
- TNS (April 19, 2004). *American kids shout, "I want to be a millionaire!" and stress importance of having lots of money*. Retrieved June 4, 2004 from http://www.tns-global.com/corporate/Doc/0/DC88BMIUDNMKN1QP91MJ301S26/OK-KidsMoney_FINAL-+US.pdf
- TNS. (2002). *Wireless and Internet Technology Adoption by Consumers Around the World*.
Accessed March 20, 2004 at www.tns-global.com
- Yankee Group (2004). *Yankee Group Estimates Youth Market Generated \$21 Billion in Carrier Revenue in 2003*. News Release - 02 Feb2004. Retrieved May 22, 2004 from http://www.yankeegroup.com/public/news_releases/news_release_detail.jsp?ID=PressRelease/news_02022004_wms.htm
- United Nations (2003). *World Youth Report: The global situation of young people*.
United Nations publication - Sales No. E.03.IV.7
- Wetzstein, C. (2003). Family lifeline at hand. *The Washington Times*, February 7.
Retrieved June 9, 2004 from <http://www.teenresearch.com>
- Wilhelm, A. G. (2002). Wireless youth: Rejuvenating the net. *National Civic Review*, 91(1), 293-302.
- Wilson, S. (2003, August 18). Youth play significant role in wireless. *iMedia Connection*.
Retrieved May 2004 from <http://www.imediaconnection.com/news/1952.asp>
- Wireless World Forum. (2002) *Mobileyouth2002: Sample extract*. Retrieved June 5, 2004 from <http://www.w2forum.com>

The Asian Pacific:

- Arnold, W. (2000). Manila's talk of town is mobile. *The New York Times*, July 5. Retrieved June 5, 2004 from <http://partners.nytimes.com/library/tech/00/07/biztech/articles/05talk.html>
- Bociurkiw, Michael (2001). "Revolution by cell phone," *Forbes*. September 10, 2001. p. 28.

- “Cardinal Sin tells Estrada to quit,” BBC News, October 11, 2000. Available: <http://news.bbc.co.uk/1/hi/world/asia-pacific/967115.stm> (accessed June 14, 2004).
- Cheil Communications (2003). *Exploring P-Generation*. Seoul, Korea.
- Clark, D. (2003). *From the Web to wireless*. Presentation made at the conference “China and the Internet: Technology, economy, and society in transition,” Los Angeles: May 30-31, 2003.
- Demick, B. (2003, February 10). Netizens crusade buoys new South Korean leader. *Los Angeles Times*, A3.
- Gottlieb, N. and McLelland, M. (2003). The Internet in Japan. In N. Gottlieb, and M. McLelland (Eds.), *Japanese Cybercultures* (pp. 1-16). New York: Routledge.
- Hachigian, N. and Wu, L. (2003). *The Information Revolution in Asia*. RAND Corporation.
- Hilado, J. K. F. (2003, February 27). Generation Text. *The Guidon Online*. Retrieved June 3, 2004 <http://www.theguidon.com/?get=2003020403>
- IPSe. (2003). *Third Annual Consumer Report: Survey Results from Research on Mobile Phone Usage*. IPSe Communication, Tokyo.
- Ito, Mizuko (2003b). Mobile Phones and the Appropriation of Place. *Receiver: Mobile environment*. Retrieved April 5, 2004 http://www.receiver.vodafone.com/08/articles/pdf/08_07.pdf
- Ito, M. (2004). *Personal, Portable, Pedestrian: mobile phones in Japanese life*. The Southern California Digital Culture Group. Los Angeles: Annenberg Center for Communication.
- Ito, M. and Daisuke, O. (2003). *Mobile Phones, Japanese Youth, and the Re-Placement of Social Contact*. Paper presented at the conference “Front stage - back stage: mobile communication and the renegotiation of the public sphere.” Grimstad, Norway.
- Ito, M., & Okabe, D. (2003). *Mobile Phones, Japanese Youth, and the Re-Placement of Social Contact*. Paper presented at the conference “Front stage - back stage: mobile communication and the renegotiation of the public sphere.” Grimstad, Norway.
- Kaihla, P. (2001). The Philippines’ other revolution. *Business2.com*. May 08. Retrieved June 4, 2004 from <http://www.business2.com/b2/web/articles/0,17863,513551,00.html>
- Katz, J., & Aakhus M. (2002). Introduction: framing the issues. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp.). Cambridge, MA: Cambridge University Press.
- Kim, S.-D. (2002). Korea: Personal meanings. In J. E. Katz and M. Aakhus (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 63-79). Cambridge, MA: Cambridge University Press.
- Long Chen, (2002, July 15). I AM A Backstage Manipulator of SMS Culture (wojiushi

- duanxinwenhua de muhouheishou), Guangzhou: *New Weekly (xinzhoukan)*.
- Massey, D. (1993). Power-Geometry and a Progressive Sense of Place. In L. Ticker (Ed.), *Mapping the Futures: Local cultures, global change*. (pp. 59-69). New York: Routledge.
- McGray, D. (2002). Japan's Gross National Cool. *Foreign Policy*. May/June 2002, 44-54.
- McVeigh, B. J. (2003). Individualization, Individuality, Interiority, and the Internet: Japanese university students and e-mail. In N. Gottlieb and M. McLelland (Eds.), *Japanese Cybercultures* (pp. 19-33). New York: Routledge.
- Rafael, V. (2003). The cell phone and the crowd: Messianic politics in the contemporary Philippines. *Popular Culture*, 15(3): 399-425.
- Rhee, I.-Y. (2003). The Korean election shows a shift in media power. *Nieman Reports*, 57(1), 95-96.
- Rheingold, Howard (2002). *Smart Mobs: The next social revolution*. Cambridge, MA: Perseus Publishing.
- Salterio, L. (2001, January 22). Text power in Edsa 2001, *Philippine Daily Inquirer*, 25.
- Sawa, K. (2000, October 22). Mobile phones silence chatty students. *Mainichi Daily News*, 12.
- Sohu-Horizon Survey (October 2003). Retrieved June 30, 2004 from <http://it.sohu.com/2004/02/19/96/article219129623.shtml>
- Special issue on the "Thumb tribes" of China. (2002, July 15). *New Weekly*
- Toral, J. (2003). *State of wireless technologies in the Philippines*. Proceedings for Closing Gaps in the Digital Divide: Regional conference on digital GMS (pp. 173-177). February 26-28, 2003. Bangkok, Thailand.
- Victory for 'Nosamo,' makers of president. (2002, December 20). *Korea Times*.
- Yoon, K.-W. (2003b). "Retraditionalizing the mobile: Young people's sociality and mobile phone use in Seoul, South Korea," *European Journal of Cultural Studies*, 6 (3): 327-343.
- Yoshii, H., Matsuda, M., Habuchi, C., Dobashi, S., Iwata, K., & Kin, N. (2002). *Keitai Denwa Riyou no Shinka to sono Eikyuu*. Mobile Communications Kenkyuukai, Tokyo.
- Yue, Z. (2003). Mobile phone demonstrates individuality: New expressions of today's hand-phone culture. *Beijing Morning Post*, February 24, 2003. Retrieved April 29, 2004 from <http://mobile.tom.com/Archive/1145/2003/2/24-53731.html>

Section 5: Wireless Communication and Socio-Political Mobilization**The Philippines**

- Alfredson, Kirsty and Vigilar, Rufi (2001). "The rise and fall of Joseph Estrada," *CNN World*. Available: <http://edition.cnn.com/2001/WORLD/asiapcf/southeast/04/22/estrada.profile/> (accessed on June 12, 2004).
- Andrade-Jimenez, Helen S. (2001). "Technology changing political dynamics," *IT Matters*. January 29, 2001. Available: http://itmatters.com.ph/news/news_01292001a.html (accessed on June 3, 2004).
- Arillo, Cecilio T. (2003). *Power grab*. Manila, Philippines: Charles Morgan Printing & Equipment, Inc.
- Arnold, Wayne (2000). "Manila's talk of town is mobile," *The New York Times*, July 5. Available: <http://partners.nytimes.com/library/tech/00/07/biztech/articles/05talk.html> (accessed June 5, 2004).
- Bagalawis, Jennifer E. (2001). "How IT helped topple a president," *Computer World*, January 30, 2001. Available: http://wireless.itworld.com/4273/CW_1-31-01_it/pfindex.html (accessed June 3, 2004).
- Bociurkiw, Michael (2001). "Revolution by cell phone," *Forbes*. September 10, 2001. p. 28.
- "Cardinal Sin tells Estrada to quit," BBC News, October 11, 2000. Available: <http://news.bbc.co.uk/1/hi/world/asia-pacific/967115.stm> (accessed June 14, 2004).
- "Estrada's fall from hero to villain," BBC. <http://news.bbc.co.uk/1/hi/world/asia-pacific/1063976.stm> (accessed June 5, 2004).
- "Estrada suspends talks with MLF," *Philippine Daily Inquirer*, January 7, 2001. p. 2.
- Friginal, Rachele (2003). "From 25% to 2005: Teledensity to hit 33%," *Malaya*, November 13, 2003. Available: <http://www.malaya.com.ph/nov13/busi1.htm> (accessed on June 12, 2004).
- Gaspar, Karl (2001). "Once again, an outpouring in the streets brings change to the Philippines," *Sojourners Magazine*. March-April 2001. p. 15.
- Hachigian, N. and Wu, L. (2003). *The Information Revolution in Asia*. RAND Corporation.
- Hilado, Jessica K. F. (2003). "Generation Text," *The Guidon Online*, February 27, 2003. Available: <http://www.theguardon.com/?get=2003020403> (accessed June 3, 2004).
- Kaihla, Paul (2001). "The Philippines' other revolution," *Business2.com*. May 08, 2001. <http://www.business2.com/b2/web/articles/0,17863,513551,00.html> (accessed on June 4,

- 2004).
- Lopez, Antonio (1998). "Watch out, landowners: An ex-communist is taking on agrarian reform," *Asia Week*. July 17, 1998. Available: http://www.asiaweek.com/asiaweek/98/0717/nat_4_land.html (accessed on June 10, 2004).
- "Manila on alert after blasts," Reuters. Published in *The Australian*, January 1, 2001, the World section, p. 9.
- Pabico, Alecks (undated). "Hypertext Revolution," *I Magazine*. Available: <http://www.pldt.com/hypertext.htm> (accessed on June 5, 2004).
- "President for impeachment, anyone?" *Pamantalaang Mindanaw: A publication of the Mindanao Institute of Journalism*. October 16, 2000. Available: <http://www.mindanaw.com/2000/10/16gloria.html> (accessed on June 10, 2004).
- Rafael, Vicente (2003). "The cell phone and the crowd: Messianic politics in the contemporary Philippines," *Popular Culture*, 15(3): 399-425.
- Salterio, Leah (2001). "Text power in Edsa 2001," *Philippine Daily Inquirer*, January 22, 2001, p. 25.
- Strom, Georg (2002). "The telephone comes to a Filipino village," in James E. Katz and Mark Aakhus (eds.). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge University Press. pp. 274-283.
- "Terror attacks believed linked to al-Qaida," The Associated Press. November 20, 2003.
- Toral, Janette (2003). "State of wireless technologies in the Philippines," *Proceedings for "Closing Gaps in the Digital Divide: Regional conference on digital GMS"*. February 26-28, 2003. Bangkok, Thailand. pp. 173-177.
- Uy-Tioco, Cecilia A.S. (2003). "The cell phone and Edsa 2: The role of communication technology in ousting a president," Paper presented to the 4th Critical Themes In Media Studies Conference, October 11, 2003, New School University, New York.

South Korea

- Alford, C. F. (1999). *Think no evil: Korean values in the age of globalization*. London: Cornell University Press.
- Chang, S.-J. (2003). "The Internet economy of Korea." In B. Kogut (Ed.), *The global Internet economy*. Cambridge, MA: The MIT Press. pp. 262-289.
- Cheil Communications (2003). *Exploring P-Generation*. Seoul, Korea.

- Demick, B. (2003). "Netizens crusade buoys new South Korean leader," *Los Angeles Times*, February 10, p. A3.
- Fairclough, G. (2004). "Generation why? The 386ers of Korea question old rules," *Wall Street Journal*, April 14, p. A1.
- Fulford, B. (2003). "Korea's Weird Wired World," *Forbes*, July 21. p. 92
- Ha, J-Y. (2002). "Diffusion of the use of cell phones as internal office phones (in Korean)," *Joongang Ilbo*, January 16. Available at:
http://news.naver.com/news/read.php?mode=LOD&office_id=025&article_id=0000434286
 (accessed on March 3, 2004).
- Hachigian, N. and Wu, L. (2003). *The Information Revolution in Asia*. RAND Corporation.
- Han, K.-S. (2001). "Integrated corporate wired and wireless VPN services (in Korean)," *Hankook Ilbo* (in Korean), May 2, Available at:
http://news.naver.com/news/read.php?mode=LOD&office_id=038&article_id=0000069130
 (accessed on March 3, 2004).
- "Information Ministry plans 'Ubiquitous Korea' by 2007," *Korea Times*. June 10, 2004.
- Kim, D.-Y. (2002). "The politics of market liberalization: A comparative study of the South Korean and Philippine telecommunications service industries," *Contemporary Southeast Asia*, 24 (2): 337-370.
- Kim, H.-J., Byun, S.-K., and Park, M.-C. (2004). "Mobile handset subsidy policy in Korea: Historical analysis and evaluation," *Telecommunications Policy*, 28 : 23-42.
- Kim, J.-M. (2001). "Caught in a political Net," *Far Eastern Economic Review*. November 1. pp. 49-50.
- Kim, K.-D. (1993). *Han'guk sahoe pyondongnon* [Korean social change]. Seoul: Nanam.
- Kim, M.-K., Park, M.-C., and Jeong, D.-H. (2004). "The effects of customer satisfaction and switching barrier on customer loyalty in Korean mobile telecommunication services," *Telecommunications Policy*, 28 : 145-159.
- Kim, S.-D. (2002). "Korea: Personal meanings," in James E. Katz and Mark Aakhus (eds). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge University Press. pp. 63-79.
- Kim, S.-D. (undated). "President of cyberspace," *Netpolitique*. Available:
http://www.netpolitique.net/php/articles/kimsd_art.php3 (Accessed on May 21, 2004).
- KISDI Report (2003). *Analyses of consumer expenditures for and using patterns of IT commodities and services* (in Korean). Kyunggido: Korea Information Strategy

- Development Institute.
- Lee, Y.-Y., Park, Y.-T., and Oh, H.-S. (2000). "The impact of competition on the efficiency of public enterprise: The case of Korea Telecom," *Asia Pacific Journal of Management*, 17: 423-442.
- Len, S. (2004). "President's impeachment stirs angry protests in South Korea," *The New York Times*, March 13, p. A2.
- Lipp, J. (2003). "M-Commerce in Korea," *MFC Insight*. April, 18, 2003.
- MIC Report (2003). *Annual report of electronics and telecommunications in 2003* (in Korean). Ministry of Information and Communication. Seoul, Korea.
- "Nosamo opposes assistance to Iraq War," *Korea Times*, March 24, 2003.
- Park, H.-Y. and Chang, S.-G. (2004). "Mobile network evolution toward IMT-2000 in Korea: A techno-economic analysis," *Telecommunications Policy*, 28 : 177-196.
- Rhee, I.-Y. (2003). "The Korean election shows a shift in media power," *Nieman Reports*. Spring 2003. Vol.57, No.1. pp. 95-96.
- "Roh's support group decides not to disband," *The Korea Herald*. January 20, 2003.
- Salmon, A. (2004). "Parties rallying behind Internet in race for votes," *The Washington Times*, April 11, p. A.
- "SK Telecom dominates mobile phone market (in Korean)," *Digital Times*, December 19, 2003. Available at: <http://news.naver.com/news/> (accessed on June 21, 2004).
- "Victory for 'Nosamo,' makers of president," *Korea Times*, December 20, 2002.
- Yang, S.-J. (2003). "Korea pursuing global leadership in info-tech industry," *The Korea Herald*. January 20, 2003.
- Yang, H.-D., Yoo, Y.-J., Lyytinen, K., and Ahn, J.-H. (2003). "Diffusion of broadband mobile services in Korea: The role of standards and its impact on diffusion of complex technology system," Unpublished manuscript. Available at <http://weatherhead.cwru.edu/pervasive/Paper/UBE%202003%20-%20Yoo.pdf> (accessed June 21, 2004).
- Yoon, K.-W. (2003a). *Youth sociality and globalization: An ethnographic study of young Koreans' mobile phone use*, Ph.D. dissertation, The University of Birmingham, U.K.
- Yoon, K.-W. (2003b). "Retraditionalizing the mobile: Young people's sociality and mobile phone use in Seoul, South Korea," *European Journal of Cultural Studies*, 6 (3): 327-343.

Spain

Note: The report on Spain is mainly based on direct observation by the researchers and on reports in the Spanish press. As of September 2004 there are few bibliographic references on the subject.

Among the few we refer to:

Cué, C. E. (2004): *¡Pásalo! Los cuatro días de marzo que cambiaron el país*; Ediciones Península, Barcelona.

Ugarte, de; D. (2004): *11M. Redes para ganar una Guerra*; ed. Icaria, Barcelona.

Spanish Parliament (2004): *Comisión de Investigación sobre el 11 de Marzo*. Available at:

http://www.congreso.es/pdf/comision_investigacion/04/julio_04.htm (september, 2004).

The United States

Archibold, R. C. (2003). Protest groups planning for Republican convention. *New York Times*, August 10. Retrieved September 11, 2004 from <http://www.unitedforpeace.com>

Archibold, R. C. (2004). Days of Protests, Vigils and Street Theater (Thongs, Too) .*New York Times*, August 26.

<http://www.nytimes.com/2004/08/26/nyregion/26events.html?ex=1095048000&en=4c03fca7184bc6c0&ei=5070&fta=y>

Becker, M., & Port, B. (2004). At GOP convention, a technological battle. *New York Daily News*, September 3. Accessed September 8, 2004 from <http://www.nydailynews.com>

Carpenter, S. (2004). Pirate radio to moor at Republican convention. [Electronic version] *Los Angeles Times*, August 27.

CNN (August 28, 2004). Tech helps protesters get creative. Accessed August 31, 2004 at <http://edition.cnn.com/2004/ALLPOLITICS/08/27/wired.rabblersusers.ap/>

CNN (August 30, 2004). GOP convention protest covers miles of New York. September 11, 2004 from

<http://usgovinfo.about.com/gi/dynamic/offsite.htm?site=http://www.cnn.com/2004/ALLPOLITICS/08/29/gop.main/index.html>

Dayal, G. (2004). Yury and his magicbike. *Village Voice*, August 29. Accessed August 31, at <http://www.villagevoice.com/issues/0435/dayal.php>

Di Justo, P. (2004). Protests Powered By Cellphone. *The New York Times*, September 9. Accessed September 8, 2004 at <http://www.nytimes.com>

Gibbs, C. (2004). SMS to aid protesters at GOP convention. *RCR Wireless News*, August 30.

- Gibson, G. (2004). The Republican convention is expected to draw hundreds of thousands of protesters eager to air their discontent with the Bush administration. [Electronic version] *The Baltimore Sun*, August 22.
- Hauser, C. (2004). Marchers Denounce Bush as They Pass G.O.P. Convention Hall. *New York Times*, August 29, <http://www.nytimes.com>
- Jones, J. M. (2004). Bush gets small convention bounce, leads Kerry by seven. *Gallup Poll*, September 6. Accessed September 13, 2004 at <http://www.gallup.com/poll>
- Lebkowsky J. (2004). More on SMS-bocking during the RNC. September 4, 2004. Posting at Smartmobs, http://www.smartmobs.com/archive/2004/09/04/more_on_smsblo.html
- Lobel, H. (2004). Agency goes wireless to provide security to federal buildings during convention. *Associated Press*, August 30. Accessed September 8, 2004 at Lexis Nexis database.
- McCaffrey, S., Hill, M., & Pugh, T. (2004). Protests at new heights; sheer volume, number of arrests eclipse Chicago '68, Miami '72. [Electronic version] *Pittsburgh Post-Gazette*, September 2.
- Reardon, M. (2004). Wireless gets workout at RNC. CNET News.com. Retrieved August 31, 2004 from <http://zdnet.com/2100-1104-5330792.htm>
- Sanchez J. (2004). TxtGossip. Posting at *Reason Magazine* 09:25 AM, August 30. <http://www.reason.com/convention/2004/08/txtgossip.shtml#000061>
- Shachtman, N. (2004). Political protesters hear call with text messaging. Accessed August 31, 2004 at http://smartmobs.com/archives/2004/08/28/political_prote.html
- Simon, E. (2004). Protesters using text messages to plan. *Associated Press*, September 1. Accessed September 9, 2004 at <http://www.miamiherald.com>
- Slackman, M. (2004). If a Protest Is Planned to a T, Is It a Protest? *New York Times*, August 22. <http://www.nytimes.com>
- Stern, R. (2004). *Pro Texting*. Accessed September 9, 2004 at <http://www.newyourmetro.com/nymetro/news/rnc/9778/>
- Terdiman, D. (August 12, 2004). Text messages for critical mass. *Wired*. Accessed August 31 at http://www.wired.com/news/politics/0,1283,64536,00.html?tw=wn_tophead_3
- The Economist*. (September 9, 2004). How big was the bounce? Accessed September 13 at <http://www.economist.com>

China and Japan

Duffy, R. and Zhao, Y. (2002). *Short-circuited: Communication and working class struggle in China*. Paper presented at the China's Media Today and Tomorrow Symposium, University of Westminster.

Eckholm (2002). Laid off Chinese protest em masses. *The Associated Press*, March 18.

Fries, Manuel (2000). *China and Cyberspace: The development of the Chinese national information infrastructure*. Bochum, Germany: Bochum University Press.

“Prime Minister Koizumi’s E-mail Magazine Now in English.” PR Newswire (03/10/04)

<http://www.prnewswire.co.uk/cgi/news/release?id=118889>

Suzuki, Atsushi. “Case study45: Sagamihara, Kanagawa Prefecture (in Japanese).” Nikkei BP Government Technology June 21, 2004.

Zhao, Y. (forthcoming). Marketization and the social biases of the Chinese ‘Information Revolution’. In J. Wasko and G. Murdoch edited volume.

Section 6: The Language of Wireless Communication

Crabtree, J; Nathan, M; Roberts, S. (2003): *MobileUK. Mobile phones and everyday life*.

[Electronic Edition] London: The Work Foundation. Available at

<http://portal.acm.org/citation.cfm?doid=500292>

Eldridge, M., & Grinter, R. (2001). *Studying Text Messaging in Teenagers*, Position Paper for CHI 2001 Workshop #1 Mobile Communications: Understanding User, Adoption and Design.

Fortunati L., & Manganelli, A. M. (2002). Young People and the Mobile Telephone. *Revista de Estudios de Juventud*, 52, 59-78.

Fox, K. (2001). *Evolution, Alienation and Gossip. The role of mobile communications in the 21st century*. Retrieved March 2004 from www.sirc.org/publik/gossip.shtml

Haddon, L. (2002). Youth and Mobiles: The British Case and Further Questions. *Revista de Estudios de Juventud*, 52, 115-124.

Höflich, J., & Rössler, P. (2002). More than JUST a telephone: The Mobile Phone and Use of the Short Message Service (SMS) by German Adolescents: Results of a Pilot Study. *Revista de Estudios de Juventud*, 52, 79-100.

Fortunati, L. (2002). Italy: stereotypes, true and false. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 42-

- 62). Cambridge, MA: Cambridge University Press.
- Kasesniemi, E.-L. (2003). *Mobile Messages. Young people and a New Communication Culture*. Tampere University Press.
- Kasesniemi, E.-L., & Rautiaine, P. (2002). Mobile culture of children and teenagers in Finland. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 170-192). Cambridge, MA: Cambridge University Press.
- Katz, J., & Aakhus M. (2002). Introduction: framing the issues. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. xxx). Cambridge, MA: Cambridge University Press.
- Kurvinen, E. (2003). *Only When Miss Universe Snatches Me: Teasing in MMS Messaging*. DPPI'03, June 23-26, 2003, Pittsburgh, Pennsylvania, USA.
- Lacohée, H., Wakeford, N., & Pearson, I. (2003). A social history of the mobile telephone with a view of its future. *BT Technology Journal*, 21(3), 203-211.
- Lassen, A. (2002). *A comparative Study of Mobile Phone. Use in public places in London, Madrid and Paris*. Retrieved Feb. 2004 from <http://www.surrey.ac.uk/dwrc/papers/CompStudy.pdf>
- Lee, J. (2002, May 30). Tailoring cellphones for teenagers. *The New York Times*. Retrieved June 9, 2004 from <http://www.teenreserch.com>
- Licoppe, C., & Heurtin J.-P. (2002). France: Preserving the Image. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 94-109). Cambridge University Press.
- Ling, R. (2004). *The Mobile Connection: the Cell Phone's Impact on Society*. San Francisco, CA: Morgan Kaufmann Publishers.
- Ling, R., & Yttri, B. (2002). Hyper-coordination via mobile phones in Norway. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 139-169). Cambridge, MA: Cambridge University Press.
- Lobet-Maris, C., & Henin, J. (2002). Talking without communicating or communicating without talking: from the GSM to the SMS; *Estudios de Juventud*, 57, 101-114.
- Lorente, S. (2002). Youth and Mobile Telephones: More than a Fashion. *Revista De Estudios De Juventud*, 57, 9-24
- Mante, E. A., & Piris, D. (2002). SMS use by young people in the Netherlands. *Revista de Estudios de Juventud*, 52, 47-58.
- Murtagh, G.M. (2002). Seeing the "Rules": Preliminary Observations of Action, Interaction and

- Mobile Phone Use. In B. Brown, N. Green, and R. Harper (Eds.), *Wireless World. Social and Interactional Aspects of the Mobile Age* (pp. 81-91). New York: Springer.
- Mobile Streams, Ltd. (2002). *Next Messaging. An introduction to SMS, EMS and MMS*. Retrieved July 2004 from http://www.pucp.edu.pe/fac/cing/telecom/6_catedra/messaging.pdf
- Moore, K. (2003). *ME and End User Practices*. MGAIN: Mobile Entertainment Industry and Culture; IST-2001-38846; D3.2.1; p. 62 – 86.
- Oksman, V., & Rautiainen, P. (2002). I've got my whole life in my hand. *Revista de Estudios de Juventud*, 52, 25-32.
- Puro, J.- P. (2002). Finland: a mobile culture. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 19-29). Cambridge, MA: Cambridge University Press.
- Schegloff, E.A. (2002). Beginnings in the Telephone. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 284-300). Cambridge, MA: Cambridge University Press.
- Textually.org <http://www.textually.org/picturephoning/archives/002604.htm>
- Trujillo, M. (2003, March 7). Abbreviated phraseology – Linguists divided on cell phone messages. *Associated Press*,. Retrieved May 21, 2004 from http://www.upoc.com/corp/news/UpocAP_2.pdf
- Varbanov, V. (2002). Bulgaria: mobile phones as cultural icons. In J.E. Katz and A. Aakhus (Eds.), *Perpetual Contact. Mobile Communications, Private Talk, Public Performance* (pp. 126-136). Cambridge, MA: Cambridge University Press.
- Weilenmann, A. (2003). "I can't talk now, I'm in a fitting room": formulating availability and location in mobile-phone conversations. *Environment and Planning A*, 35(9), 1589 – 1605.

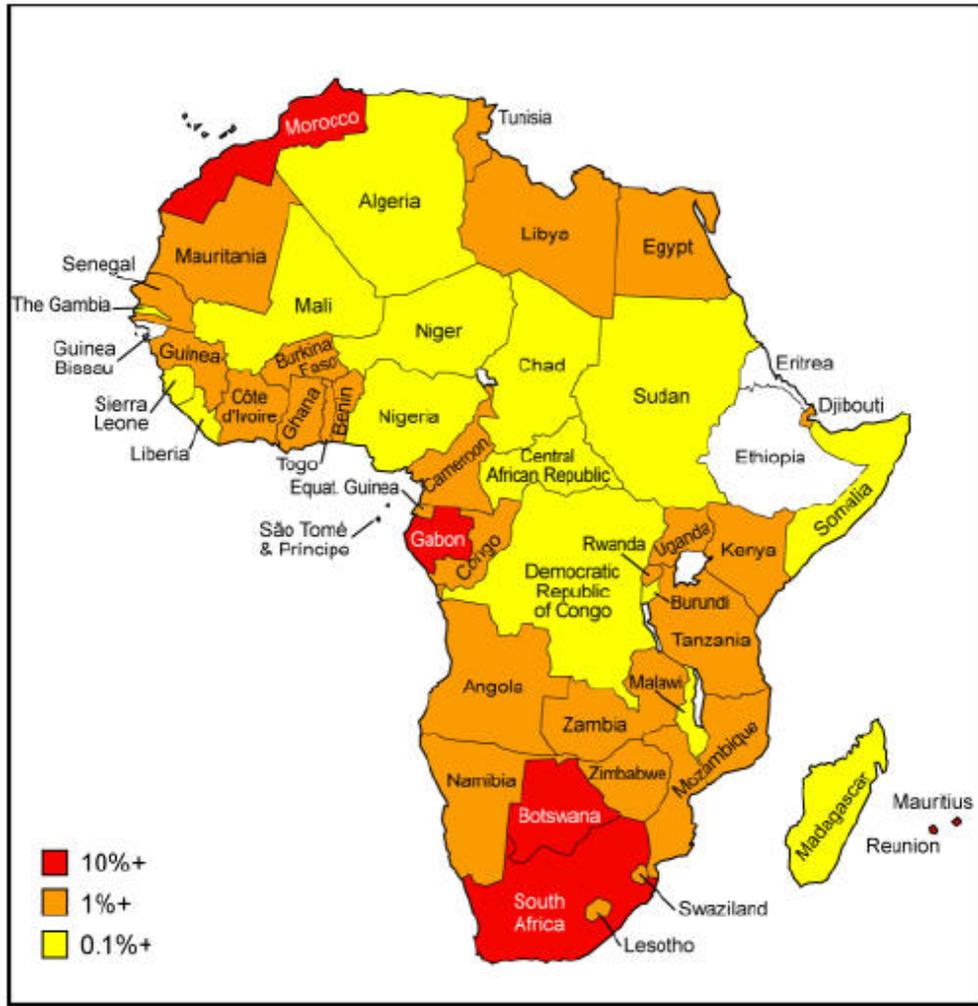
Section 7: Space and Time in the Mobile Communication Society

- Castells, M. (2000). *The Rise of the Network Society*. 2nd Edition. London: Edward Elgar,
- Colbert, M. (2001). *A diary study of rendezvousing: implications for position-aware computing and communications for the general public*; Proceedings of the 2001 International ACM SIGGROUP Conference on Supporting Group Work. Boulder, Colorado, USA. Pages: 15 – 23.

- Crabtree, J., Nathan, M., & Roberts, S. (2003). *MobileUK. Mobile phones and everyday life*. [Electronic Edition] London: The Work Foundation; 54 pages.
<http://portal.acm.org/citation.cfm?doid=500292>
- Green, N. (2002). On the move: Technology, Mobility, and the Mediation of Social Time and Space. *The Information Society*, 18, 281-292.
- Katz, J., & Aakhus M. (2002). Introduction: framing the issues. In J. E. Katz and M. Aakhus (Eds.), *Perpetual Contact. Mobile Communication, Private Talk, Public Performance*. Cambridge, MA: Cambridge University Press.
- Ling, R.. & Haddon, L. (2001). *Mobile telephony, mobility and the coordination of everyday life*. Paper presented at the Machines that Become Us Conference, Rutgers University, April 18 and 19; 19 pages. Retrieved March 2004 from [http://www.telenor.no/fou/program/nomadiske/articles/rich/\(2001\)Mobile.pdf](http://www.telenor.no/fou/program/nomadiske/articles/rich/(2001)Mobile.pdf)
- Moore, K. (2003): *ME and End User Practices*. MGAIN: Mobile Entertainment Industry and Culture; IST-2001-38846; D3.2.1; p. 62 – 86.
- Perry, M., O’Hara, K., Sellen; A., Brown, B., & Harper, R. (2001). Dealing with Mobility: Understanding Access Anytime, Anywhere. *ACM Transactions on Computer-Human Interaction*, 8(4), 323-347.
- Townsend, A. M. (2000). Life in the Real-Time City: Mobile Telephones and Urban Metabolism. *Journal of Urban Technology*, 7(2), 85-104.

APPENDICES

Appendix 1 Mobile Phone Penetration Rates in Africa (%) – July 2004



Source: Cellular Online. <http://www.cellular.co.za/stats/stats-africa.htm>

Appendix 2 Source Data for Figures

Appendix 2A: Data for Figure 2. Cellular Mobile Telephone Subscribers, per 100 Inhabitants (1992-2003)

Cellular mobile telephone subscribers per 100 inhabitants												
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Europe	0,80	1,18	1,92	3,05	4,80	7,71	13,17	22,84	36,62	44,88	51,26	55,40
Oceania	2,22	3,06	5,28	9,29	15,73	17,77	19,54	26,12	33,91	44,42	48,88	54,45
North America(1)	4,27	6,06	8,98	12,41	16,02	19,84	24,54	30,23	37,86	44,07	47,72	53,07
Rest of America	0,13	0,23	0,45	0,76	1,29	2,45	4,12	7,89	12,10	16,02	19,05	21,88
Asia	0,12	0,17	0,31	0,70	1,40	2,18	3,14	4,63	6,76	9,46	12,42	15,03
Africa	0,01	0,01	0,06	0,09	0,16	0,32	0,57	1,00	2,01	3,21	4,59	6,16

Appendix 2B: Data for Figure 3. Mobile Telephone Subscribers, per 100 Inhabitants, Country Ranking (2003)

Year 2003. Ranking			
Mobile Telephone Subscribers, per 100 Inhabitants	Number of Countries	Percentage	Cumulative Percentage
0-9	77	42,5%	42,5%
10-19	25	13,8%	56,4%
20-29	16	8,8%	65,2%
30-39	11	6,1%	71,3%
40-49	7	3,9%	75,1%
50-59	8	4,4%	79,6%
60-69	10	5,5%	85,1%
70-79	8	4,4%	89,5%
80-89	8	4,4%	93,9%
90-99	7	3,9%	97,8%
>= 100	4	2,2%	100,0%
TOTAL	181	100%	-
Median =	13,3		

Source: ITU and own elaboration

Appendix 2C: Data for Figure 17: Cellular Telephone Subscribers, per 100 Inhabitants. Selected countries (2003)

Cellular mobile telephone subscribers per 100 inhabitants, 2003		
Luxembourg ² 106,05	Austria 87,88	OECD¹ 69,93
Italy 101,76	Ireland 84,47	France 69,59
Iceland 96,56	Switzerland 84,34	Korea (Rep. of) 69,37
Spain 91,61	United Kingdom ² 84,07	Japan 67,96
Norway 90,89	Belgium ² 78,56	New Zealand 64,82
Portugal 90,38	Germany 78,54	United States 54,3
Finland 90,06	Greece 78,00	Canada 41,68
Sweden ² 88,89	Netherlands 76,76	China 21,40
Denmark 88,72	Australia 71,95	Phillipines 19,13

Appendix 2D: Data for Figure 18. Cellular Mobile Telephone Subscribers per 100 Inhabitants, EU (1992-2003)

Cellular Mobile Telephone Subscriber, per 100 Inhabitants. European Union, 1992-2003						
EU-25: Current EU. EU-15: Former EU Countries EU-10: New EU Countries (2004 enlargement)						
	1992	1993	1994	1995	1996	1997
EU-25	1,28	1,92	3,13	4,92	7,76	12,37
EU-15	1,52	2,28	3,69	5,77	9,00	14,10
EU-10	0,07	0,16	0,39	0,72	1,59	3,77
	1998	1999	2000	2001	2002	2003 ¹
EU-25	21,08	36,13	56,85	68,02	74,61	80,01
EU-15	23,87	40,68	63,29	73,93	79,21	84,02
EU-10	7,20	13,33	24,43	38,02	51,25	59,89

Source: ITU and own elaboration

¹ Author's estimation.

Appendix 2E: Data for Figure 19. Mobile Telephone Subscribers per 100 Inhabitants (1995, 1999 and 2003)

Mobile Telephone Subscribers, per 100 Inhabitants. 1995, 1999 and 2003							
	1995	1999	2003		1995	1999	2003
Luxembourg	6,55	48,37	106,05 ²	Germany	4,55	28,54	78,54
Italy	6,84	52,83	101,76	Greece	2,61	36,74	78,00
Iceland	11,53	61,93	96,56	Netherlands	3,48	42,52	76,76
Spain	2,41	37,32	91,61	Australia	12,41	33,35	71,95
Norway	22,46	61,29	90,89	OECD¹	8,66	38,17	69,93
Portugal	3,44	46,73	90,38	France	2,25	36,56	69,59
Finland	20,07	63,38	90,06	Korea (Rep. of)	3,68	51,30	69,37
Sweden	22,72	58,29	88,89 ²	Japan	9,33	44,88	67,96
Denmark	15,73	49,47	88,72	New Zealand	10,05	37,17	64,82
Austria	4,77	51,98	87,88	United States	12,77	30,96	54,30
Ireland	4,38	44,78	84,47	Canada	9,08	23,40	41,68
Switzerland	6,35	42,62	84,34	China	0.29	3.42	21.40
United Kingdom	9,79	45,69	84,07 ²	Philippines	0.72	3.83	19.13
Belgium	2,32	31,12	78,56 ²				

Source: ITU and own elaboration

1 Author's estimation. 2. 2002

Appendix 2F: Data for Figure 28. Internet Usage on a Mobile Telephone. (Percentage of Internet Users)

Internet usage on a mobile phone (percent of Internet users)					
	Germany	UK	Norway	Italy	Bulgaria
2001	18%	13%	11%	8%	3%
2002	13%	13%	8%	7%	3%

Appendix 2G: Data for Figure 28. Access to Mobile Telephone by Age, Selected European Countries (2002)

Access to Mobile Telephone, by groups of age. Year 2002			
% of population of each group of age with access to Mobile Telephone.			
Ages	Finland	Norway	Denmark
16-29	100	97	89
30-49	98	95	88
50-59	95	93	76
60-74	76	80	58

Source: Nordic Council of Ministers (2002): Nordic Information Society Statistics 2002; Helsinki.

Access to Mobile Telephone, by groups of age. Year 2002			
% of population of each group of age with access to Mobile Telephone.			
Ages	UK	Catalonia	Spain
16-24 ^(a)	87	84	80
25-34	85	79	78
35-44	83	71	65
45-54	73	61	53
55-64	61	50	41
65-74 ^(b)	43	21	15
75 or more ^(c)	15		

^(a) UK: 15-24

^(b) Catalonia and Spain: 65 or more

^(c) Catalonia and Spain: Data not available

Sources:

Spain and Catalonia: Household Information Technology Survey, National Institute of Statistics, Spain (www.ine.es); and own elaboration.

UK: Consumers' Use of Mobile Telephony Survey, Office of Telecommunications (www.ofcom.org.gov).

Appendix 2H: Data for Figure 30. Households' ownership of mobile telephones (% of households)

Households' ownership of mobile telephones, % of households					
Unit: %	1999	2000	2001	2002	2003
Spain	n.a.	n.a.	n.a.	65	74
Catalonia	n.a.	n.a.	n.a.	65	77
Germany	n.a.	30	56	70	73
France	n.a.	44	55	62	66
UK	n.a.	68	79	80	85
Denmark	59	68	73	84	85
Finland ^a	n.a.	n.a.	82	82	92
Norway	58	68	76	82	n.a.
Sweden	73	80	85	87	n.a.

n.a.: data not available. //

^a Data for years 2001 and 2002 belong to the same survey, referred to 2001/2.

Appendix 3. Mobile Penetration Per Total Inhabitants And Degree Of Urban Concentration, Latin America (2001)

Country	Mobile Penetration (%)	Urbanization (%)
Nicaragua	3.0	55.3
Honduras	3.6	48.2
Ecuador	6.7	62.7
Costa Rica	7.6	50.4
Peru	5.9	72.3
Colombia	7.6	74.5
Bolivia	9.0	64.7
Guatemala	9.7	39.4
El Salvador	12.5	55.2
Dominican Rep.	14.7	70.4
Uruguay	15.5	92.6
Brazil	16.7	79.9
Argentina	18.6	89.6
Paraguay	20.4	56.1
Panama	20.7	57.6
Mexico	21.7	75.4
Venezuela	26.4	87.4
Chile	34.0	85.7

Source: Hilbert and Katz (2003, page 93), from ITU (International Telecommunication Union), World Telecommunication Indicators Database, 2002. ECLAC (Economic Commission for Latin America and the Caribbean), Foreign Investment in Latin America and the Caribbean (LC/G.2125-P/E), Santiago, Chile. United Nations publication, Sales N° S.01.II.G.12, 2001a.

Appendix 4 *Mobile Telephone Subscribers, per 100 Inhabitants Detailed country ranking, 2003*

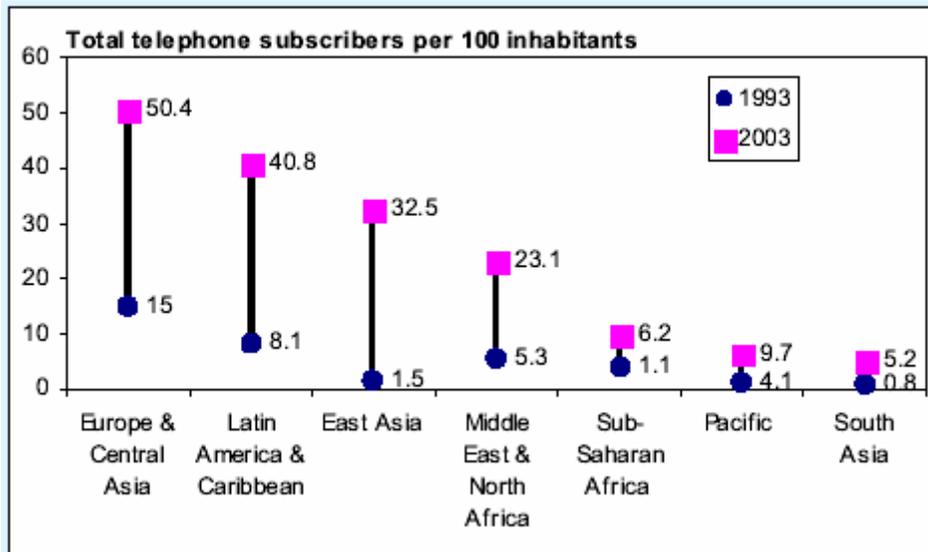
1	Taiwan, China	110,84		38	Qatar	58,99
2	Luxembourg	106,05		39	Cyprus	58,44
3	Hong Kong, China	105,75		40	Croatia	58,37
4	Italy	101,76		41	Kuwait	57,81
5	Iceland	96,56		42	United States	54,30
6	Czech Republic	96,46		43	Jamaica	53,30
7	Israel	95,45		44	Latvia	52,86
8	Spain	91,61		45	Barbados	51,91
9	Norway	90,89		46	Antigua & Barbuda	48,98
10	Portugal	90,38		47	Poland	45,09
11	Finland	90,06		48	Malaysia	44,20
12	Sweden	88,89		49	Chile	42,83
13	Denmark	88,72		50	Canada	41,68
14	Austria	87,88		51	Turkey	40,84
15	Slovenia	87,09		52	Brunei Darussalam	40,06
16	Ireland	84,47		53	Bahamas	39,03
17	Switzerland	84,34		54	Mauritius	37,87
18	United Kingdom	84,07		55	French Polynesia	37,49
19	Macao, China	81,51		56	South Africa	36,36
20	Singapore	79,56		57	Albania	35,80
21	Belgium	78,56		58	New Caledonia	35,71
22	Germany	78,54		59	Serbia and Montenegro	33,78
23	Greece	78,00		60	Bulgaria	33,30
24	Netherlands	76,76		61	Romania	32,87
25	United Arab Emirates	73,57		62	Saudi Arabia	32,11
26	Malta	72,50		63	Suriname	31,95
27	Australia	71,95		64	Paraguay	29,85
28	France	69,59		65	Trinidad & Tobago	27,81
29	Korea (Rep.)	69,37		66	Bosnia	27,40
30	Slovak Republic	68,42		67	Dominican Rep.	27,14
31	Seychelles	68,18		68	Panama	26,76
32	Japan	67,96		69	Brazil	26,36
33	Hungary	67,60		70	Thailand	26,04
34	Lithuania	66,62		71	Venezuela	25,64
35	Estonia	65,02		72	Mexico	25,45
36	New Zealand	64,82		73	Botswana	25,29
37	Bahrain	63,84		74	Morocco	24,34
				75	Jordan	24,18
				76	Lebanon	22,70
				77	Gabon	22,44
				78	China	21,40
				79	Belize	20,46

(see next page)

						(End)
80	Uruguay	19,26		131	Ghana	3,56
81	Tunisia	19,21		132	Djibouti	3,44
82	Philippines	19,13		133	Tonga	3,38
83	Ecuador	18,41		134	Viet Nam	3,37
84	Oman	18,32		135	Benin	3,36
85	Argentina	17,76		136	Zimbabwe	3,22
86	TFYR Macedonia	17,70		137	S. Tomé & Príncipe	3,17
87	El Salvador	17,65		138	Uganda	3,03
88	Bolivia	16,67		139	Armenia	3,01
89	Maldives	14,91		140	Cambodia	2,76
90	Colombia	14,13		141	Nigeria	2,55
91	Fiji	13,31		142	Tanzania	2,52
92	Palestine	13,27		143	India	2,47
93	Guatemala	13,15		144	Syria	2,35
94	Russia	12,01		145	Mali	2,30
95	Dominica	12,00		146	Mozambique	2,28
96	Cape Verde	11,63		147	Zambia	2,15
97	Namibia	11,63		148	Yemen	2,11
98	Belarus	11,32		149	Sudan	1,95
99	Costa Rica	11,10		150	D.R. Congo	1,89
100	Mauritania	10,90		151	Burkina Faso	1,85
101	Azerbaijan	10,69		152	Libya	1,81
102	Georgia	10,68		153	Pakistan	1,75
103	St. Kitts and Nevis	10,64		154	Madagascar	1,71
104	Peru	10,61		155	Haiti	1,69
105	Guyana	9,93		156	Rwanda	1,60
106	Congo	9,43		157	Samoa	1,50
107	St. Lucia	8,95		158	Guinea	1,44
108	Mongolia	8,89		159	Sierra Leone	1,35
109	St. Vicent	8,53		160	Malawi	1,29
110	Egypt	8,45		161	Uzbekistan	1,25
111	Swaziland	8,43		162	Bhutan	1,13
112	Ukraine	8,38		163	Marshall Islands	1,11
113	Moldova	7,69		164	Kyrgyzstan	1,04
114	Equatorial Guinea	7,64		165	Bangladesh	1,01
115	Gambia	7,53		166	Lao P.D.R.	1,00
116	Côte d'Ivoire	7,43		167	Angola	0,93
117	Grenada	7,13		168	Burundi	0,90
118	Cameroon	6,62		169	Chad	0,80
119	Kazakhstan	6,43		170	Tajikistan	0,73
120	Senegal	5,56		171	Central African Rep.	0,31
121	Indonesia	5,52		172	Papua New Guinea	0,27
122	Iran (I.R.)	5,10		173	Comoros	0,25
123	Kenya	5,02		174	Solomon Islands	0,22
124	Sri Lanka	4,92		175	Nepal	0,21
125	Honduras	4,87		176	Niger	0,20
126	Algeria	4,56		177	Turkmenistan	0,17
127	Lesotho	4,47		178	Cuba	0,16
128	Togo	4,40		179	Ethiopia	0,14
129	Nicaragua	3,78		180	Myanmar	0,13
130	Vanuatu	3,76		181	Guinea-Bissau	0,10

Source: ITU and own elaboration.

Appendix 5 Growth in total teledensity (fixed and mobile combined) among different developing regions (1993-2000)



Source: ITU (2004, p.79). ITU Internet reports: The portable Internet.

Appendix 6. *Selected events in the history of wireless technologies in China*⁸⁴³

- November 1987 The first analog cellular phone system was set up by Guangdong Telecom under the Ministry of Post and Telecommunications (MPT).
- March 1994 MPT Bureau of Mobile Communications was established.
- July 1994 China Unicom (*Liantong*), the second nationwide mobile phone operator, came into operation.
- April 1995 China Telecom launched GSM digital mobile phone network in 15 provinces.
- October 1997 China Telecom (Hong Kong) was listed in the stock markets of Hong Kong and New York.
- April 1999 The State Council approved plan to separate China Mobile from China Telecom.
- February 2000 China Unicom signed contract with Qualcomm with regard to the development of CDMA systems in China.
- May 2000 China Mobile was formally established to replace the mobile communication division of China Telecom.
- June 2000 China Unicom was listed in the stock exchange markets of Hong Kong and New York.
- July 2001 The GPRS (2.5G) system of China Mobile went into operation.
- March 2002 China Mobile and KTF (Korea) signed contract on GSM-CDMA automatic roaming.
- May 2002 Half of China Telecom's assets, including Little Smart networks, were transferred to the ownership of China Netcom. Short messages could be exchanged between subscribers of China Mobile and China Unicom.
- October 2002 China Mobile started to provide multi-color message system (MMS) services.

⁸⁴³ "Review of the development of mobile phone in China (in Chinese)," Available: www.blogchina.com/new/source/254.html (accessed April 29, 2004).

Appendix 7. A Timeline for the Development of UTStarcom

- 1991 Overseas Chinese students founded Unitech in California and Starcom in New Jersey.
- October 6, 1995 Unitech and Starcom were merged to form UTStarcom.
- October 19, 1995 Softbank agreed to provide USD 30 million of venture capital to UTStarcom.
- 1996 UTStarcom (China) was established with new offices being set up in Hangzhou and Chongqing.
- December 1997 The first Little Smart trial site in Yuhang went into service.
- December 1998 Little Smart was launched in Zhangqing, Guangdong Province. It marked the beginning of Little Smart in small Chinese cities.
- May 2000 Little Smart was introduced to bigger cities in China such as Baoding, Hangzhou, and Xi'an.
- March 3, 2000 UTStarcom completed initial public offering on Nasdaq. Its stock price rose 278 percent on the first day.
- January 2001 *Forbes* selected UTStarcom to be the world's top 20 most successful companies in 2000.
- May 2001 UTStarcom's PAS system was launched in Taiwan by Fitel.
- October 2001 UTStarcom opened its Japan branch office.
- November 2001 700-U, the first UTStarcom designed PAS handset was launched in China.
- December 2001 Little Smart had been launched in more than 20 provinces and over 200 cities in China, reaching a total of 3 million users.
- March 2002 UTStarcom became the main broadband equipment provider for Yahoo! BB in Japan.
- March 2002 Investing USD 50 million, UTStarcom officially established its R&D center in India.
- June 2002 UTStarcom was chosen as one of the top 100 IT companies worldwide by *Business Weekly*.
- March 2003 UTStarcom purchased part of the assets of Commworks, a unit of 3COM, for USD 100 million.
- April 2003 UTStarcom was selected by *Finance Asia* as one of the 10 best enterprises in Asia in terms of management

2003	Little Smart gained 25 million new subscribers.
March 2004	UTStarcom launched its first dual-mode PAS/GSM handset
June 2004	Little Smart users reached 50 million in China.

Appendix 8. Timeline: President Roh Moo-Hyun and the Nosamo movement

- 1995 Roh Moo-Hyun started to use Internet for political campaign while running for the mayor of Pusan.
- June 6, 2000 Nosamo was established immediately after Roh's loss in the parliamentary election.
- November 2002 The National Election Commission barred Nosamo from raising money to support Roh. Nosamo.org was forced to close until Election Day.
- Dec 18, 2002 Chung Mong-Joon, a multimillionaire and key partner of Roh, withdrew his support of the presidential candidate on election eve.
- Dec 19, 2002 Extensive mobile phone-based mobilization was utilized with Nosamo's 70,000 members being its core; Roh was elected as president.
- January 2003 Internal poll decided that Nosamo would no disband after the victory. It would continue to play an active role in Korean politics.
- March 2003 Nosamo opposed Roh's decision to assist the U.S. in the Iraq War
- March 12, 2004 Roh's presidency was suspended during an impeachment investigation. The Nosamo again played a major role in staging support for him.

Appendix 9 SMS language around Europe. Some examples of “shortis”.

Listing of non-standard orthographic forms UK

Source: Shortis (2001), quoted in Thurlow (2003)

Form Type					
Shortenings	Uni mon	‘University’	sis morn	‘sister’ ‘morning’	
	tues	‘Monday’	Lang	‘language’	
	wed	‘Tuesday’	Comm.	‘communication’	
	thurs	‘Wednesday’	Mo	‘moment’	
	thur	‘Thursday’	Thou	‘though’	
	fri	‘Friday’	Goss	‘gossip’	
	sat	‘Saturday’	Proj	‘project’	
	sun	‘Sunday’	Com	‘communication’	
	vid	‘video’	Bud	‘buddy’	
	lab	‘labatory’	Lec	‘lecture’	
	poss	‘possible’	Manch	‘Manchester’	
	min	‘minute’	Eco	‘economics’	
	def	‘definitely’	Hon	‘honey’	
	tog	‘together’	Eng	‘English’	
	gram	‘grammar’	Ed	‘edition’	
	aft	‘after’	Ger	‘German’	
	bro	‘brother’	Feb	‘February’	
	Contractions	Gd	‘good’	Mesge	‘message’
		nt	‘night’	Txt	‘text’
bt		‘but’	Cld	‘could’	
yr		‘your’	Frm	‘from’	
wk		‘week’	Bck	‘back’	
bk		‘back’	Wrks	‘works’	
sn		‘soon’	Grp	‘group’	
mt		‘meet’	Abt	‘about’	
hm		‘home’	Ltr	‘later’	
nxt		‘next’	Lst	‘last’	
lv		‘love’	Txtin	‘texting’	
wkend		‘weekend’	Getin	‘getting’	
tmrw		‘tomorrow’	w’end	‘weekend’	
w.end		‘weekend’	c’diff	‘Cardiff’	
msg		‘message’	Mins	‘minutes’	
msging		‘messaging’	doc’s	‘doctor’s’	
lookd		‘looked’	Secs	‘seconds’	
spk		‘speak’	Sbk	‘speak’	
wrk		‘work’	Yrself	‘yourself’	
plymth		‘Plymouth’	Jokn	‘joking’	
b.day		‘birthday’	MSG	‘Message’	

G clippings	goin	‘going’	Fuckin	‘fucking’
	jumpin	‘jumping’	Shaggin	‘shagging’
	thinkin	‘thinking’	Leadin	‘leading’
	comin	‘coming’	Lookin	‘looking’
	drivin	‘driving’	Thinking	‘thinking’
	hurтин	‘hurting’	waitin messin	‘waiting’ ‘messing’
	mornin	‘morning’	feelin huntin	‘feeling’ ‘hunting’
	meetin	‘meeting’ ‘trying’	smilin sortin	‘smiling’ ‘sorting’
	tryin gettin	‘getting’ ‘talking’	havin spendin	‘having’ ‘spending’
	talkin	‘working’	stayin borin	‘staying’ ‘boring’
	workin	‘darling’		
	darlin	‘missing’		
	missin	‘screwing’		
	screwин			
Other clippings	hav wil	‘have’ ‘will’	cardif alrigh	‘cardiff’ ‘alright’
	ankl til he’l	‘ankle’ ‘till’	couldn tonigh	‘couldn’t’ ‘tonight’
	I’l to we’l	‘he’ll’ ‘I’ll’ too	chic wher age	‘chick’ ‘where’
		‘we’ll’		‘ages’
Acronyms	BFPO		DI	
Initialisms		‘British Forces Posted Overseas’		‘Detective Inspector’
		‘Ta ta for now’		
	TTFN	‘As soon as possible’	V T TOPS	‘Very’ ‘The’
	ASAP wbs	‘Write back soon’	GG TB	unknown) name)
	LOL LOL	‘Laugh out loud’ ‘Lots of love’		‘Text back’
Letter/number homophones	B U R 1 2 4	‘be’ ‘you’ ‘are’	2getha 1td	‘together’ ‘wanted’
	Gr8 no1s	‘one’ ‘to’/ ‘too’	2day	‘today’ ‘tomorrow’
	18r 18 1s	‘for’ ‘great’ ‘no’	2morrow	‘tomorrow’
	sk8 18er k8	ones’ ‘later’ ‘late’	2morro 2mor	‘tomorrow’ ‘anyone’
	2nite	‘ones’ ‘skate’	ne1 m8 2mo	‘mate’ ‘tomorrow’
	2moro	‘later’ ‘kate’	12 b4 2night	‘want to’ ‘before’
	evry1	‘tonight’	BCNU RU Y	‘tonight’ ‘Be seeing
	2morrw	‘tomorrow’	cing cn NE	you’ ‘are you’ ‘why’
	every1	‘everyone’	2moz	‘seeing’ ‘seen’ ‘any’
		‘tomorrow’		‘tomorrow’
		‘everyone’		

'Misspellings' and typos	Esay exelent ofense rember aniversary seing realy	'essay' 'excellent' 'offence' 'remember' 'anniversary' 'seeing' 'really'	Mallet unespectin flics Addicted Finishes Commin	'mallet' 'unsuspecting' 'flicks' 'addicted' 'finishes' 'coming'
Non-conventional spellings	Sumtime cum cuming fone foned sori nite rite mite lata otha bcum sum reali alrite uve luv	'sometime' 'come' 'coming' 'phone' 'phoned' 'sorry' 'night' 'right' 'might' 'later' 'other' 'become' 'some' 'really' 'alright' 'you've' love	Tonite wot thanx Gud Ure Suga Xams Rinkley Skool Yrself Ud u'll Shud Ruff No Wen	'tonight' 'what' 'thanks' 'good' 'your' 'sugar' 'exams' 'wrinkly' 'school' 'yourself' 'you'd' 'you'll' 'should' 'rough' 'know' 'when'
Accent stylization	wivout da / de novern dat laf afta anuva dats eva doya em erd hun wassup ello ad ave wotcha av gaf d'ya	'without' 'the' 'nothern' 'that' 'laugh' 'after' 'another' 'that's' 'ever' 'do you' 'them' 'heard' 'honey' 'what's up' 'hello' 'had' 'have' (greeting) 'have' 'gaff' 'do you'	tav nethin Showen Bin Ya Coz Cos Cuz Girلز Bout Gimme Gona Wanna Gonna Dunno Watcha Kinda Yo Aught wiv / wif / wid / wit	'taff' 'nothing' 'showing' 'been' 'you' 'cause' 'cause' 'cause' 'girls' 'about' 'give me' 'going to' 'want to' 'going to' 'don't know' 'what are you' 'kind of' (greeting) 'nothing' 'with'

Listing of non-standard orthographic forms: **SPAIN**

Source: Lorente (2002, p. 21)

Main words or expressions most used by young Spaniards	
Abbreviation	Word/Expression
tq	I love you
bss	Kisses
mk?	Do you love me?
hl	Hi
aptc	I feel like it
cnt	Answer
xa	For
xo	But
nt1d	I haven't a cent
jodt	Get stuffed
pdt	Forget me
npi	No bloody idea
clga	Mate

Listing of non-standard orthographic forms: **FINLAND**

Source: Oksman, V.; Rautiainen, P. (2002, p.31)

Main words or expressions most used by young Finnish		
Abbreviation	Local meaning	English translation
<i>In English:</i>		
CU	See you	
LOL	Lot of love	
MSD	My sweet darling	
<i>In Finnish:</i>		
MisO	Missä olet?	Where are you?
AL	Akku loppuu	The battery is running out
EOS	En osaasanoa	Can't tell you
ET	Ei todellakaan	Impossible
EVVK	Ei vois vähempää kiinnostaa	Don't give a damn
EVY	En voi ymmärtää	Don't understand
HIH	Hihitän itseni hengliltä	Laughing to hell
HK	Henkilökohtainen	Personal
HY	Hyvää yötä	Good night
JKS	Järjen käyttö sallittua	Common sense permitted
MRS	Minä rakastan sinua	I love you
MiSuMe?	Miten sulla menee?	How are you?
TMY	Tule meille yöksi	Would you come home for staying overnight?

TT	Terkkua tutuille	Greetings to everyone
Vst	Vastaus; Vastaa!	Answer; question
ÄUN	Älä unta nää	Please dream!

Listing of non-standard orthographic forms: **NORWAY**

Source: Ling, R. (2002, P.43)

Main words or expressions most used by young Norwegian		
Code	Local meaning	English meaning
Taken directly from English		
CUL8R	See you later	
GR8	Great	
U	You	
Adapted to Norwegian language		
7K	Sjuk	Sick
D	Det	The
R	Er	Is
DRQLT	Det er kult	It's great
GID	Glad I deg	I love you
Ñ	Nja	Perhaps yes, perhaps no
OXO	Også	Also

Listing of non-standard orthographic forms: **THE NETHERLANDS**

Source: Mante, E. A.; Piris, D. (2002, P. 56)

Use of SMS language in the Netherlands (http://www.smsnederland.nl/smstaal.htm)	
Code	Meaning
1-1	ik wil sex ! I want sex
2m	Tomorrow (Morgen)
2n	Tonight (vanavond)
2d	Today (vandaag)
73's	Groetjes greetings
88's	Kusjes (kisses)
(*_*)	mooi meisje beautiful girl
:-)	ik ben blij I am happy
:-))	ik ben heel erg blij I am very happy
:-):-):-)	ik lach me dood I almost die laughing
:-I	Het doet me niks This means nothing to me
:-(Ik ben boos I am angry
:-((Ik ben heel boos I am very angry
:-C	Ik ben teleurgesteld I am disappointed
O:-)	Jij bent een engel ! you are an angel

((H))	Dikke knuffel van mij cuddle/hug
8-)	Ik ben bril dragend I wear glasses
:-#	Ik draag een beugel I wear braces
:'-(-	Ik moet huilen I want to cry
:-x	Kusje Kiss
:-i	Ik rook I smoke
(Y)	Ik heb mijn kruis kaalgeschoren I shaved my crotch
(I)	Ik heb een erectie I have an erection
:-9	Ik smacht naar je I crave for you
X-(-	Ik ben ziek I am sick
:#)	Ik ben dronken I am drunk
(.)(.)	mooie ronde borsten beautiful round tits
(_OO_)	Bofkont lucky dog (literally 'lucky cunt')
(_13_)	Pechkont unlucky person (literally 'bad luck cunt')
:-(-	Boos angry
;-)	Knipoog wink
* *	
^	ik mag niks zeggen I am not allowed to say anything
###	
@@ *	Kusje kiss
@->-->--	speciaal voor jou ! special for you
akg	alles komt goed everything will be alright
beffen	bellen faxen en e-mailen phone, fax and email
biw	ben ik weer here I am again
brb	be right back
bzt	ben zo terug be right back
bs	Bullshit
b-tje	Beetje little bit
cya	zie je later see you later
ff	eventjes / effe / even just a minute
gep	geen enkel probleem no problem
hoest	hoe is 't ermee ? how is it?
ikvjou	Ik houd van je I love you
ikwniet	ik weet niet I don't know
iig	in ieder geval in any case
ixje	ik zie je I see you
oppt	oppie toppie just perfect
v.l.e.k.jes	veel liefs en kusjes love and kisses
waus	te gek / gaaf too cool

Listing of non-standard orthographic forms: **ITALY**

Source: Fortunati; Manganelli (2002, p.76)

[As] can be seen in the brief dictionary given below (Omnitel, s.d.):

IAP In altre parole (In other words)

MIC Manteniamoci in contatto (Let's keep in contact)

NCN Non conta niente (It doesn't count anything = It doesn't matter)
 NoVelOr Non vedo l'ora (I can't see the time)
 IOC In ogni caso (In any event)
 IboLu In bocca al lupo (In the wolf's mouth = Good luck)
 L8Xam Lotto per Amore (I fight for love)
 FDT Fuori di testa (Out of your head)
 FIFT Fatti i fatti tuoi (Do your things = Mind your own business, Look after your affairs)
 Fse Fatti sentire (Be alive)
 Drin Fine dell'ora di lezione (End of class time)
 CPP Chiamami per piacere (Call me please)
 CTF Completamente tagliato fuori (Completely cut off = Send someone to Coventry, Do less)
 D6 Dove sei? (Where are you?)
 CoSSba Correggimi Se Sbaglio (Correct me if I'm wrong)
 CiVeCat Ci vediamo a casa tua (We'll see you in your house)
 BLP Butta la pasta (Throw the pasta = Prepare the pasta)

BlaDT Parlami di te (Tell me about yourself)
 AMMP A mio modesto parere (In my modest opinion)
 AP A proposito (By the way)
 AXO Arrivederci per ora (Bye for now)
 6SMSF Sei sulla mia stessa frequenza (You on my wavelength)
 SDG Su di giri (Up with turns = To be accelerated, go at a hundred)
 QPR Quando posso rivederti (When can I see you again?)
 CTNCEN Come te non c'è nessuno (There's no-one like you)
 CIN Ci incontriamo? (Shall we meet?)
 6TuXMe Sei tutto per me (You are everything to me)
 MaQMIAm? Ma quanto mi ami? (How much do you love me?)
 CCPO Ciao ciao per ora (Bye, bye for now)

Listing of non-standard orthographic forms: **GERMANY**

Source: Höflich, J., Rössler, P. (2002, p. 86)

AKLA = Alles klar? (everything o.k.?)
 8UNG = Achtung, wichtige Mitteilung (Attention, important message)
 BBB = bye-bye, Baby
 BGS = Brauche Geld, sofort! (Need money, immediately)
 BIBALUR = Bin bald im Urlaub (I'm on holidays soon)
 BILD = Bärchen, ich liebe dich (Little bear, I love you)
 BRADUHI = Brauchst du Hilfe? (Do you need help?)
 BSE = Bin so einsam (I am so lonely)
 DAD = Denk an Dich (I think of you)
 DDR = Du darfst rein (You may come in)
 DUBIDO = Du bist doof (You are crazy)
 DUBMEILE = Du bist mein Leben (You are my life)
 DUWIPA = Du wirst Papa (You will get father)
 FF = Fortsetzung folgt (To be continued)

GLG = Ganz liebe Grüße (Many lovely greetings)
HADILI = Hab dich lieb (I love you)
HAFSMDWAV = Harry, fahr schon mal den Wagnvor (Harry, drive the car away)
HASE = Habe Sehnsucht (Yearning)
HDGDL = Hab' Dich ganz doll lieb (I love you very much)
HEGL = Herzlichen Glückwunsch (Congratulations)
ILUVEMIDI = Ich liebe und vermisse dich (I love and miss you)
ISDN = Ich kann Deine Nummer sehen (I can see your number)
ISLANO = Ich schlafe noch (I'm still sleeping)
KEINAODI = Keine Nacht Ohne Dich (No night without you)
KO25MISPÄ = Komme 25 minuten später (Coming 25 minutes later)
KSSM = Kein Schwein schreibt mir (Nobody – no pig - writes me)
KV = Kannste vergessen (Forget it)
LAMBADA = Lass mich bitte an dich anlehnen (Let me lean on you)
LAMWI = Lach mal wieder (Please laugh again)
LIDUMINO = Liebst du mich noch? (Do you still love me?)
MAMIMA = Mail mir mal (Write me a mail)
NOK = Nicht ohne Kondom (Not without a condom)
ODIBINI = Ohne Dich bin ich nichts (I'm nothing without you)
Q4 = Komme um vier (Come at four)
RUMIA = Ruf mich an (Call me back)
SDEDG = Schön, dass es Dich gibt (Nice that you exist)
SMILE = So möchte ich leben (So I want to live)
SMS = Servus, mein Schatz (Bye bye love)
TABU = Tausend Bussis (A thousand kisses)
TUS = Tanzen unter Sternen (Dancing under the stars)
UMTS = Unsere Mutter tanzt Samba (Our mother is dancing a samba)
WIWONIAUGE = Wir wollen niemals auseinander gehen (We will never seperate)
WZTWD = Wo zum Teufel warst Du? (Where the devil have you been)
ZUMIOZUDI = Zu mir oder zu Dir? (To me or to you?)

Listing of non-standard orthographic forms: **BELGIUM**

Source: Lobet-Maris, C.; Henin, L. (2002; p.112)

BRIEF DICTIONARY OF "G-NERATION" USAGE		
Some ways of greeting		
« BJR »	bonjour	Good morning
« BSR »	bonsoir	Good afternoon/evening
« lo »	hello	Hello
« @2M1 », « A2M1 »	à demain	Till tomorrow
« RV 2M1 »	rendez-vous demain	See you tomorrow
« J'V te LéC »	je vais te laisser	I'll be leaving you
« BCNUL8TR »	be seeing you later (« on se voit plus tard »)	See you later

« CU », « CYA » »	see you, see ya (« à bientôt », « à la prochaine »)	See you later
« CUL8TR »	see you later (« on se voit plus tard »)	See you later
« CU 2nite »	see you tonight (« à ce soir », « on se voit ce soir »)	See you tonight
« B4N »	bye for now (« c'est tout pour le moment »)	All for now
« IG2Go »	i've got to go (« je dois y aller »)	I've got to go

Frequent questions		
« CB? »	ça baigne ?, ça va bien ?	Everything OK?
« TV1? », « Ske tu vi1? »	tu viens ?, est-ce que tu viens ?	Are you coming?
« TVB? »	tu vas bien ?	Are you OK?
« 2VaB1? »	tout va bien ?	Everything OK?
« T pa f'Hé? »	tu n'es pas fâché(e) ?	You're not angry?
« CT B1 IR? »	c'était bien hier ?	How did yesterday go?
« Sa t'1 TRS? »	ça t'intéresse ?	Are you interested?
« Put1 kestu fou? »	putain, qu'est-ce que tu fous?, ,	What are you doing, you old bastard?

Some expressions in day-to-day living		
« AMA »	à mon avis	In my opinion
« AMHA »	à mon humble avis	In my humble opinion
« AMHAAMQJA »	à mon humble avis à moi que j'ai	As I humbly understand it
« BTW »	by the way (« au fait », « à ce sujet »)	By the way
« GCRé 2 PaC »	j'essaierai de passer	I would try and go
« Gcout 1 CD »	j'écoute un CD	I am listening to a CD
« G 2 manD »	j'ai demandé	I asked
« l'R 2 Ri1 »	l'air de rien	Nothing
« G l'R 2 Ri1 »	j'ai l'air de rien	Blank
« ChanJ 2 suG »	change de sujet	Change of subject
« Je mank d'NRJ »	je manque d'énergie, je suis fatigué	I'm exhausted
« J'le saV »	je le savais	I knew it
« J'V RST »	je vais rester	I'm staying
« J X pa »	je n'y crois pas	I don't believe it
« G 1 Kdo »	j'ai un cadeau	I have a present
« GU 1 Kdo »	j'ai eu un cadeau	I had a present

« Ls tomB »	laisse tomber	Drop
« D100! »	descends !	Go down!
« RapL mwa 6 sa t'1 TRS »	rappelle moi si ça t'intéresse	Remind me if you are interested
« Ta K paC »	tu n'as qu'à passer	You only have to come by
« No strS »	no stress, pas de stress, du calme	Take it easy
« GT entr1 2 penC a twa »	j'étais en train de penser à toi	I was thinking of you
« T la + BL »	tu es la plus belle	You're the best looking

Listing of non-standard orthographic forms: **FRANCE**

Source: *Rivière (2002) Page 136-137*

SOME EXAMPLES OF ABBREVIATIONS USED IN THE SMS

The implicit rules are:

- Abbreviate everything you can ("slt" for "salut")
- Match writing to pronunciation as much as possible, i.e., letters and figures pronounced phonetically ("Tu C" for "Tu sais")
- Use numbers that indicate useful sounds ("2m" for "demain")

Although not stated here, many Anglicisms are used in France as they are very comfortable due to their conciseness and frugality in letters.

ABBREVIATION	FRENCH MEANING	ENGLISH MEANING
keskisspass?	Qu'est qui se passe?	What's happening?
pkoi?	Pourquoi?	Why?
slt	salut	Health
koman?	Comment?	How?
koman sa C paC"	Comment ça c'est passé?	How was it?
C2	C'est tout	That's all
Tépala?	Tu n'es pas là?	Aren't you there?
Kestufé?	Qu'est-ce que tu fais?	What are you doing?
T ou?	Tu es où?	Where are you?
KeskeC?	Qu'est-ce que c'est?	What is it?
Tu C	Tu sais	You know
2m	Demain	Tomorrow
jt'm	Je t'aime	I love you
Jtem	Je t'aime	I love you
2min	Demain	Tomorrow
K7	Cassette	<i>Cassette</i>
Ki	Qui	What

Source: Laurent Henin and the author herself.

Listing of non-standard orthographic forms: **RUSSIA**

Source: Vershinskaya, O. (2002, p. 148)

SMS language

To try to understand trends in the SMS message sending language, we have to divide users into those who know English and those who know the English alphabet.

The main trend for those who know English is to abbreviate English words:

Those who only know the English alphabet transliterate Russian words with the help of English letters. It is important to note that because of Internet chats and e-mails many English words have penetrated the Russian language. So there is a trend to use both English and Russian words in one and the same message.

In this case, English words may remain intact and may undergo some change in the direction of Russification. Here are a few examples of the trend to mix the Russian and English languages:

•

"Forvardni mne soobschenie" (Forward a message to me)

- "Replui mne bistro" (Reply to me quickly)
- " Tvoi soft plokhoi "(Your software is bad)
- "Ya khochu pousat' tvoi soft " (I want to use you software)

Both groups use international mini-pictures to express their emotions:

a smile; dislike; I am very sad etc.

There is not only a SMS language but also SMS slang. This can be seen in the attempt to find a Russian person's name as a nickname of an English word, particularly a name of a firm or some device:

Boshik means a Bosch phone
 Gen'ka – a Philips Genie phone
 Lizhi - LG
 Motia – a Motorola phone
 Sonia - a Sony phone
 Filia- a Philips phone
 Erick - an Ericsson phone
 Mal'chick (a boy) - a phone with an external antenna
 Morda (a face in slang) - a display, etc.

Summarizing, we can name the following general trends:

SMS message sending is happening in two languages at the same time so the English part tends to be international from the start;

to find a short sign sounding like a long one, by abbreviating English words;

to use English words in Russian speech making an English word Russian, creating a kind of Russian -English Weblish.

Appendix 10 SMS language in the United States

ABBREVIATIONS	MEANING
tlk	Talk
2	To
lol	Laugh out loud
IU	I love you
143	I love you
knw	Know
dnt	Don't
b/c	Because
w/e	Whatever
b	Be
u	You
B4L	Best friends for life
n	And
gr8	Great
nm	Not much
coo	Cool
koo	Kool
wht	What
2night	Tonight
4ever	Forever
bff	Best friends forever
2morrow	Tomorrow
loft	Laughing on the floor
brb	Be right back
nada	Nothing
<3	Love
grl	Girl
ur	Your
u r	You are
d8	Date
POS	Parent over shoulder
ova	Over
luv	Love
?	What?
k	OK
o	Oh!
nvmnd	Never mind
ttul	Talk to you later
r	Are

Source: Yu, L., Sacher, H., & Louden G. (2002). Buddysync: thinking beyond cell phones to create a Third-generation wireless application for U.S. teenagers. *Estudios de Juventud*, 57(2), 173-188.