

# Promoting Healthy Lifestyle and Mobile Communication in Risk Society? Risk Discourse and Adaptive Social Interactions in the Mobile Age

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Risk is an integral part of super-modern society! This paper examines: What risks are associated with mobile communication and how are they mediated across mass media? And in what way(s) are health risks for using high-radio-frequency mobile communicative device (mobile phone) exposed, discussed and mitigated in Japanese society? In other words and above all, our core questions are: how people respond and adapt to the (missing of) risk discourse in risk society in the information age.

Section 1 of this paper provides a conceptual specification on risk society, mobile communicative risks and the health impact. It will be followed by an outline on high-tech mobile communication development in Japanese society. With reference to societal responses to the risks of mobile communication, Section 3 discusses risk communications on mobile phone in Japan, highlighting the social adaptation to high-tech mobile communication system with a risk-avoidance regime. The paper ends with critical remarks on the mobile communicative engagements with the embedded risks.

**Key Words :** Health, Information Age, Japan, Mobile Communication, Mobile Phone, Modernity, Risk Society

## 1. Risk Discourse in/beyond (Post)Modern High-Tech Society

The quest for healthy lifestyle(s), in the post-industrial, risk society, has been becoming the major shift for free market consumerism at the global scale, this is not just been experienced in our daily exposure to green and healthy advertisements campaigned by business organizations, but the calling for healthy lifestyle(s) is also materialized in public policy terms, policy initiatives at local, national and international levels are targeting to promote more healthy, risk-free, social activities – this can be seen in the health promotion activities of the developed world and the WHO. Here, the communicative aspects of the healthy and risk-free lifestyle is interesting yet challenging for our investigation, particularly when we focus

on the ever-expanding and deepening of mobile communicative experience in different time-space dimensions in general, and the health risks for the specific form of using high-frequency mobile phone in particular.

Since the 1980s, more social scientists have been attempting to understand the embedded risks of the modernization project and high-tech lifestyle. Ulrich Beck (1986)'s *Risikogesellschaft - auf dem Weg in eine andere Moderne* (translated as *Risk Society - Towards a New Modernity*, 1992a/b) has not just brought the debate back in social scientific mapping of individual and global risk-taking (in contrast to the sustainability), but also challenging the very problematic aspect (which exacerbates socio-environmental crisis) of our modernity project. This new and emerging academic concern is

in fact refocusing on the crisis embeddedness of the scientific-technological global market system (Flynn et al. 2001, Jaeger et al. 2001, Habermas 1985, Lash and Wynne 1992).

### 1.1 Living with(out) High-Tech and Risks(?)

Exposure to radiation from radio frequencies of mobile phone should be understood as people encounter with high-tech instrument with the embedded risk, and the issue is controversial yet the debate is never-ending (Burgess 2004, Cox 2003). Risks embedded with high-tech development at global scale – the unintended consequences of the modernity project – are controversial. State interventions onto risk-avoidance only demonstrate their ungovernability over scientific rationality and the people's subjectivity of feeling and sensing the dangers in everyday life. Here, the reflexive modernization as discussed in the *Risk Society* highlights the uncertainty of modernization, as well as the certainty of risk rediscovery in many aspects of modern lifestyle (Beck 1986, 1991, 1992a/b, Beck, Giddens and Lash 1994).

The global socio-economic change, juxtaposed with various crises, was quite obvious in the 1970s. More specific, the environmental crises and catastrophes were a direct consequence of the *normal* modern production of by-products (e.g. CFC against Ozone Layer), hazardous exposure (in Bhopal and Chernobyl), and industrial and domestic wastes. In short, the technological advancement has changed the ecological system. One of the detrimental effects of modernization is the ever multiplication of risks on global scale and the penetration of techno-risks into everyday social life, coupled with the tendency of the ungovernability of the state and market mechanism on global risks (Beck 1986; *Daedalus* 1990). In contrast to bio-genetic technology and nuclear energy development, information and communication technologies (ICT) are less controversial because of their readiness to be accepted and consumed by people at large – in James Katz (2004) wordings: *Machines that becomes Us*, or there is a cultural affinity, if not sympathy, for ICT communication (Smandych and Hamm, Eds. 2005).

The new configuration of risks, in contrast to natural disasters in the pre-modern time, is the involvement of people (as agency) in creating the technologies. Yet, the differential conceptions on risks and the communications of them are very much embedded in the time and locational specific

cultural and community context (Douglas and Wildavsky 1982) and in the modern world, the state agency's definition on risk acceptability (Clarke 1989). In short, risks and people-made disasters are the inevitability of the modern production and consumption system.

The historical idea of *Risk* is a probability of the losses and gains, in a given condition. The present concept of risk is associated with the omnipotence of dangers – threats to survival – even to the next generations of, people, animal and ecological system. For example, the nuclear decay rate of some radioactive substances is up to hundred of years. More important, the *risks* embedded in our modern world system are real and long lasting if compared with those in the pre-modern time. Here, the risks generated are beyond the rational control (say, in terms of cost-benefit analysis) measurement within one's life span. In short, uncertainties over and the prevention of risks are becoming an integral part of community life. In actuality, our present (no matter how you name it: post-material, post-modern) society has more 'known' dangers than ever. If the worst scenario occurs, say, the further depletion of ozone layer, our civilization and eco-system would end up themselves permanently!

*Risks*, in most cases, are embedded in the modern technologies which are structurally shaped by (yet also shaping) the societal linkages and community dynamics. More problematic, risks are characterized by the so-called "interactive complexity" and "tight coupling" (Perrow 1984: 75-92) synergy which has the inclination for system failure as happened in many technology disasters. In short, the techno-accidents are being normalized and embedded "in an industrial society that has some parts, like industrial plants or military adventures, which have interactive and tightly coupled units. Unfortunately, some of these have high potential for catastrophic accidents" (ibid, 8).

### 1.2 Health Risk in the Mobile Age: Beyond High-Tech Historic-Temporal Context?

Health is a holistic concept, including physical, psychological and spiritual domains. Health risk therefore is both experiential (evidence-based) and to be felt (with intuition) (Burgess 2004, Cox 2003). Yet, health risks embedded in new modern high-tech are become normalized as accident. These *Normal Accidents* (insightfully coined by Charles Perrow, 1984) in technology disasters can only be

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explained and are managed within a set of rational and scientific modelings in this phase of modernity. Yet, the related assumptions in managing technology disasters, on the one hand, and the technological risks, on the other, are still within a paradigm full of *a priori* assumptions and reasoning. On the other hand, people consciousness reflects the doubts over technology. For the uncertainty and doubts, deep anxiety and perplexity with technology are becoming the fact of life. But they are institutionally expressed in mathematics terms, juxtaposing the fact that more *accidents* are developed in line with the trajectory of technological advancement. At this historical conjuncture, it is appropriate to describe our present form of civilization (i.e. modernity) as *Technology-cum-Risk society*. The contours of risk paradigm are in fact characterized by the invisibility, penetration power and global nature of risks, plus the multiplication of the techno-risks at geometrical rate and exponential scale (Beck 1986). The synergetic effects of technological development, associated risks are further exacerbated by the reportage of the mass media and risk communications (Bostrom 2003).

Equally problematic is that our knowledge on uncertainty (safe or unsafe?) in general and risks in particular are much shaped by the competitive mass media, which usually dramatize (if not exaggerate) the extent of disaster. The crisis is chaotic and catastrophic when the political system cannot provide answers on the causation of the modern *normal accidents*. In short, the exposure to the ever increasing technological accidents has been disastrous for individuals as well as the political system (Renn, et al. 1992). The management of the hazardous exposure and its aftermath are therefore quite controversial (Bostrom 2003, Gow and Otway 1990). Obviously, apart from its dependency on technological system, society is rediscovering how dependent it is on high-tech systems and how vulnerable people are in front of global risks in everyday life. More important, this rediscovery has significant implication for the acceptable allocation of (the rate, intensity and extent of) technological risks to individuals in the risk society project.

Our quest for healthy lifestyle has obvious social implications. The most important one is the concern for the distribution, as well as the re-allocation of positive life chance and the risks in our society: the poisonous substance in food chain, the occupational health and risk, the radioactive exposure, the locality exposed to excessive ultra-violet because of the

depletion in ozone layer, and in all, each individual body's exposure to the high-tech risk.

## 2. Mobile Communication in Japanese Informational Society

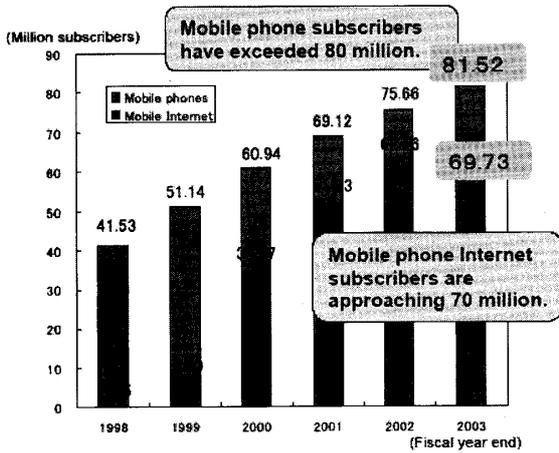
Against the informational society development in different localities, Japan is unique in many ways: for its synergy between pre- and post-modernity in digital animations as well as its cultural heritage and consumerism and, last but not least, also for its computer games and virtual world mediated by the Sony's Play Station 2 and/or carried over by the NTT DoCoMo i-Mode and its 3-G FOMA service. Driven by high-tech development and strong spirit of consumerism, ICT development and mobile technologies have been extending the diversity of life in Japan. To characterize it as a social transformation is no exaggeration (Katz 2003, Ishii 2003, cf. Dholakia and Zwick 2004, Grantham and Tsekouras 2003).

### 2.1 High Growth for Internet-Access and Mobile Communications

Japanese browse the net and make online-shopping by means of their cell phones. At end of March 2004, the number of mobile phone subscribers has exceeded 80 million and the number of mobile phone Internet subscribers approached 70 million, hence, Japan with its ratio of 89.5% of Internet-compatible cell phones ranked as number one among the OECD-countries (MPHPT 2004, see Fig. 1 and Fig. 2).

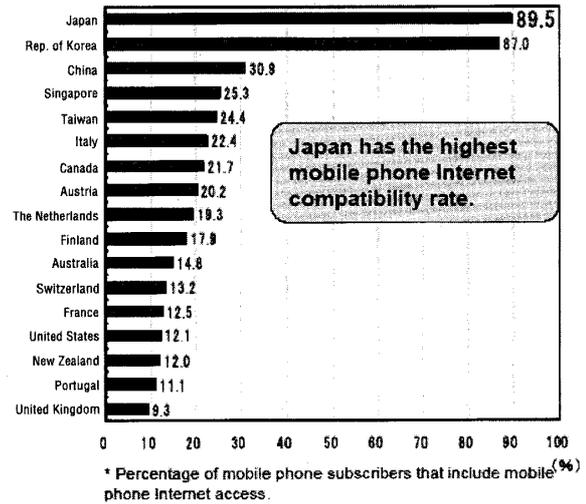
Taking the advantageous high-tech (such as ADSL, Cable, DSL and FTTH) media framework, the actual number of Internet users was 77.3 million in Japan (at March 2004), an increase of 7.88 million over the previous year and for the first time, exceeding 60% of the population for the first time (Fig. 3). The mode for Internet connection has been moving towards broadband which covers over 50% of the total access, and the mobile Interneting has been increased substantially from 15.3% (in 2002) to 18.8% (in March 2004). It is obvious that various forms of mobile Interneting will become important, vis-à-vis the fixed line broadband communication (Fig. 4). This trend is likely to prevail as the further Japanese taking on 3-G mobile phone, the total number of 3-G mobile phone subscribers in March 2004 has grown rapidly to 16.69 million in less than two and half year (Fig. 5).

**Fig. 1: Number of Mobile Phone Subscribers and Number of Mobile Phone Internet Subscribers (end of fiscal 2003)**



( Source: MPHPT 2004 )

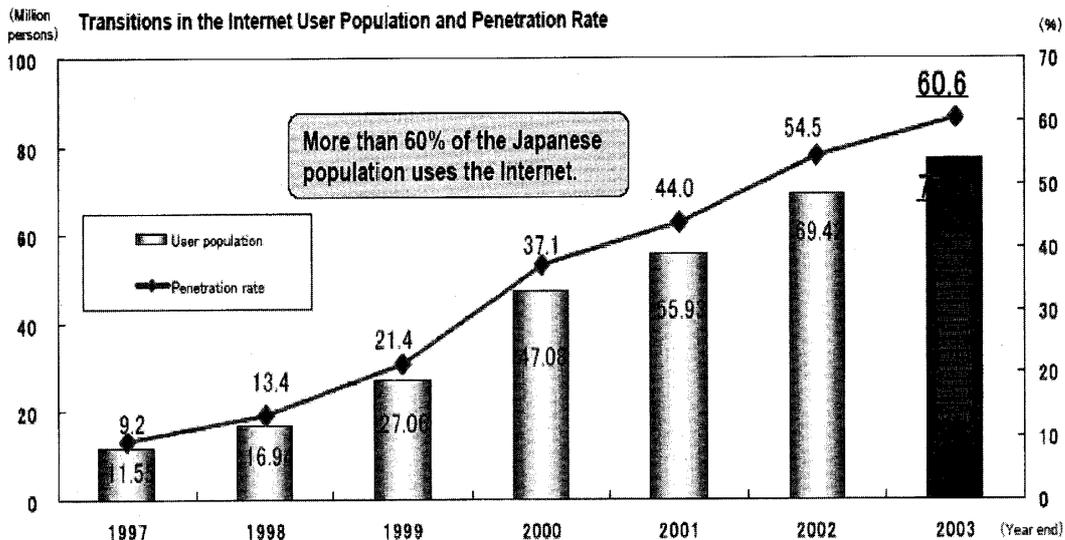
**Fig. 2: Mobile Phone Internet Compatibility Rates\* in Leading Countries (September 2003)**



Produced from "3G Mobile" documents

( Source: MPHPT 2004 )

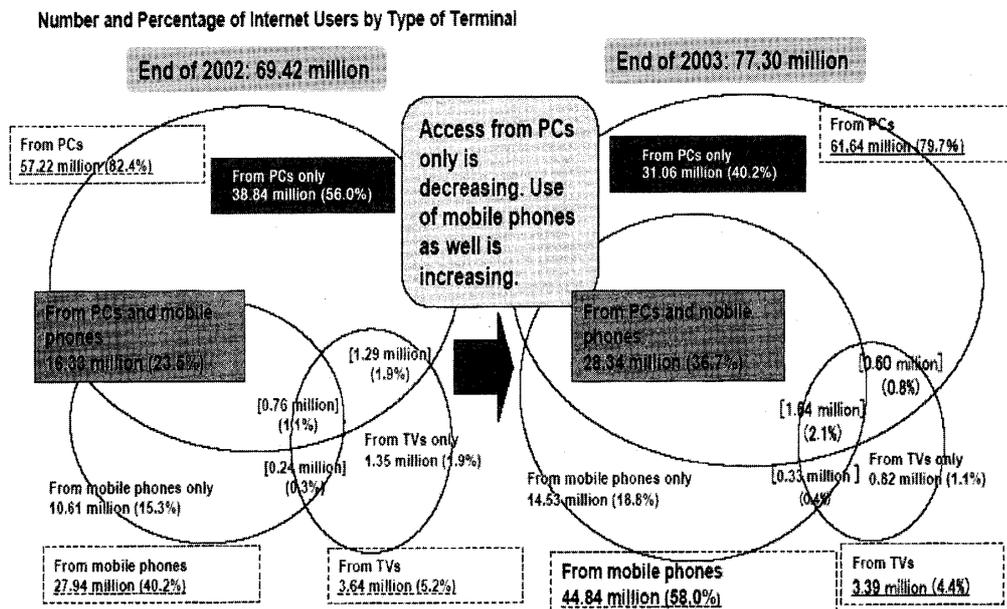
**Fig. 3: Internet Penetration Rate**



Source: Communications Usage Trend Survey, MPHPT

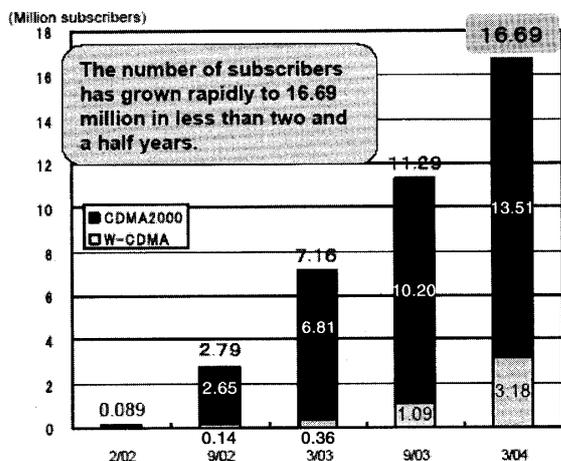
( Source: MPHPT 2004 )

**Fig. 4: Number and Percentage of Internet Users by Type of Terminal**



( Source: MPHPT 2004 )

**Fig. 5: Number of 3-G Mobile Phone Subscribers (March 2004)**



( Source: MPHPT 2004 )

**2.2 Cyber-dynamism and e-Government: Fantasy or Reality?**

The rapid development of Japanese information society is characterized by its production-driven regime for both export and domestic demand derived from mass consumerism on high-tech gadgets. This can be shown from the importance of ICT sector in Japanese economy.

For economic development, ICT is the core

developmental strategy for (post-)industrialization in Japan. The ICT- development has a ripple effect on the economy. Its share of Japan's total real GDP is about 11%, as it is also a high growth sector: contrasting to the average annual GDP growth rate of 1% between 1995 and 2002, ICT sector average growth rate was 7% at the same period – it is exceptionally high! This sector is also contributory to the job creation: about 1.49 million new jobs created in the same period, and in 2003, its workforce of 3.64 million accounts for 6.8% of all employment; and it is the third largest employment sector, after retailing and construction industries. In addition, the total factory productivity gain in ICT sector was the highest compared with other industries, between 1995 and 2002, its productivity increased by 3%.

On the other hand, for the 21<sup>st</sup> century, Japanese government's goal is to build up a so-called e-Japan. It means, in 2005, we are supposed to use ICT for the purpose of e-commerce and e-government to everyday life. This is very much with the policy initiative in most of the East Asian industrialized economies which have already been developing their portals for an e-government and e-commerce, and the development is always making the mobile communication ubiquitous and omnipotent (Lai 2004, 2005; cf. Fortunati 2005).

The Japanese Prime Minister Junichiro Koizumi has made his government digitized. The e-Japan policy (<http://www.kantei.go.jp/foreign/it/network/priority/slide1.html>) was introduced in early 2000 and its aim is first to make e-government services available in full scope for Japan be the most advanced nation world-wide. By 2005, the Internet penetration and ICT literacy rate in Japan are planned to increase in 60%, providing e-commerce and e-business in full scope. A special portal for e-government service (<http://www.e-gov.go.jp/>) has already been established. It is obviously something new for agencies and elite with political power to captivate their voters in / out off the net. At the same time, it's a strategy for them to survive in the era of e-politics. In June 2001, the Japanese Prime Minister Junichiro Koizumi – whose popularity once had been more than 80%, but later, in July 2002, dropped down to less than 50% – launched an own newsletter on the web (<http://www.kantei.go.jp/>) and gained more than one million subscribers in less than a week! Despite its design as a one-way communication, the newsletter demonstrated at least Prime Minister's e-popularity, if not his misusing of the Net for political purposes. The future will show us how far such e-politics can go.

E-commerce, e-government and e-politicking are becoming part of socio-political life in Japan: the use of electronic commerce by individuals in Japan rose 64.8 percent in 2003 from the previous year to a total value of 4.42 trillion yen, according to a government report (*The Japan Times*, 13. June 2004). The sharp increase is attributable to the further spread of broadband-based wired and wireless communications and the increased efforts by businesses to use the Internet for marketing and sourcing.

### 2.3 The Futuristic Mobile Communication in Japan?

Mobile technologies development in Japan is futuristic, juxtaposing the new waves of high-tech consumerism (Ishii 2003). Following the successful launching of terrestrial digital broadcasting services in Tokyo, Osaka and Nagoya in December 2003, Japan Broadcasting Corp. (NHK) and five private broadcasters will start offering terrestrial digital broadcasting services for mobile phones by early 2006, marking the first such venture in communication history.

Regional initiatives are developing for futuristic

mobile technologies too. Though a single global standard for 3G has yet to be established, while 4G mobile systems are still in the experimental stage, Japan, China and South Korea have stepped up their push to pool resources on new technologies and possible common standards for the region (cf. Forge 2004). Since March 2004, Japan, China and South Korea have been working on a plan to cooperate in information technologies, including future Internet systems, they will work together to develop cutting-edge technologies, including fourth-generation mobile communication (*The Japan Times*, 6. April 2004).

In short, the phenomenal expansion in the capabilities of the mobile phone offers tremendous opportunities for business, commerce, education, entertainment, government services and law enforcement (Abbott, Ed. 2004, Katz 2003, Reid 2005).

### 3. Risk Configuration in Japan – Mobile Phone as (non-)Health Hazards

High-tech is always embedded with risk. For mobile communications, there are three domains of risk. First, it is the cellular-phone network (transmission antennas and towers), then the handset (as personalized communicative tool), and lastly, the mobile communication itself which is conducive to unhealthy lifestyle and crime.

#### 3.1 Locating Mobile Networking – Not-In-My-BackYard?

Large scale radio-frequency transmission hub with antennas, communication base and relay-stations are target for Not-in-My-Backyard (NIMBY) protests. Risks of over-exposure to high-frequency radio waves are being articulated in various forms of neighborhood. In 2001, there were about 150 mobile communication stations projects across Japan being protested by local residents groups; it was noted that about 50 projects have been canceled because of opposition (*The Japan Times*, 6. Nov. 2001). But the anti-tower movement has not been strong, if compared with the anti-nuclear power and/or ecological movement in Asia (cf. Lee and So 1999).

Two obvious dynamics are at work for these controversial protests. First, it is the involuntary nature of the sitting of such large transmitters – residents were mostly not involved in the

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decision making for the sitting. Second, it is the risk communication and discourse, accepted or rejected by the residents. Retrospectively speaking, it seems that the 'forced' decision making by the communication authority and/or mobile communication service providers has made residents angry and the risk concerns were just contingent to the sitting controversies.

Recently, this trend of protests is abated because of better networking clusters of transmitters which are smaller and less visible, the public relations strategies employed by mobile phone providers and the necessity of the acceptance of such kind of project as seen by the general public.

### 3.2 The Health Risk Embedded Mobile Handset

There are two areas of problems for mobile handset. First and foremost, it is the concern on the high electro-magnetic frequency of the radiation emission, and the radiation exposure of human beings using mobile phone. Second, it is the system failure of the mobile phone due to design manufacturing problems.

Confronting the first problem, using mobile phone in public transport is mostly discouraged and partially regulated in Japan. For instance, some compartments of the train are designated as 'no mobile phone' zone, where special health needs (disabled and aged) people can commute safely without worry about noise, and the so-called (non-ionizing) radio-frequency radiation, in addition to the social norm that mobile phone should be switched off (or just the limited use of SMS). The radiation issue is also linked to the radio frequency transmission and interference with other personal health device, like heart pacemakers, medical and aviation instruments. I will discuss this later (in section 3.4).

For the second problem, it is mostly the flaws in design and/or manufacturing of mobile phone handset: it is not uncommonly found. In March 2004, the KDDI found flaws in about 320,000 *au* handsets: 258,000 A5503SA *au* mobile phones manufactured by Sanyo Electric Co handsets have defective data-management functions and users may have trouble sending and receiving e-mail; this is in addition to the battery defects of 66,500 handsets of model A5403CA (*The Japan Times*, 30. March 2004).

### 3.3 Mobile Communications as Incubator for Unhealthy Lifestyle and Social Illness?

Mobile communication sometimes is out of the proper social context that will have problematic consequences, traffic accidents and crime are just two most obvious cases. Many studies discover that mobile communication has adverse effect on driving behaviors – the distraction of attention of the driver, regardless of hand-held or non-hand-held mobile phone. For instance, the combination of decision making, motor-skills and car-phone communications on the roads increases accident risk (Laberge-Nadeau et al. 2003, Liu and Lee 2005).

To confront with this problem in Japan, motorists who use mobile phones while driving, since November 2004, have to be fined. The fines will be 5,000 yen for small motorcycles, 6,000 yen for cars and 7,000 yen for large vehicles such as trucks and buses. Those who refuse to pay, there will be fined up to 50,000 yen. This is a big change from previous regime that drivers who use mobile phones were punished only when they pose an imminent accident risk (*The Japan Times*, 25. August 2004).

On the other hand, mobile communications are considered to be risky for the under-aged and teenagers, in spite of and if not because of, their high taking-up rate of mobile communication usage (over 65%), the risks range from unhealthy lifestyle to crime activities. In other words, the more omnipotent and ubiquitous of mobile communication network gives rise to the threats upon vulnerable sectors of society, particularly children; they may face a range of dangers from this new technology: bullying, pressurizing advertisements, illegal images, harmful or inappropriate images, and predatory pedophiles (Reid 2005).

The Cabinet Office's 2004 White paper on the status of youth said that Web sites enable people to meet online and arrange dates, and the spread of mobile phones with Internet access was thought to have contributed to the increase in crime by making it easier for strangers to set up encounters with juveniles. Another poll on sexual violence conducted by the government-backed Asian Women's Fund highlighted that approximately 10 percent of the girls said they were sexually harassed through online activities via personal computers and/or mobile phones (*The Japan Times*, 28. July 2004).

Internet websites on abnormal yet legal behaviors

are increased substantially, for instance, there are sites for like-minded people to discuss the ways of carry out a carefully planned suicide – Since February 2004, at least 20 Japanese have killed themselves in groups, with insights derived from websites (*The Japan Times*, 28. July 2004).

Prepaid mobile phones are increasingly being used to commit crime, as the difficulty to track the users' identity and for this NTT DoCoMo Inc. plans discontinue offering prepaid mobile phone services (currently for 90,000 unknown users).

It has found that delinquent students use their mobile phones far more often than their non-delinquent peers, according to a National Police Agency survey released in June 2004. The survey showed that students who have been either arrested or taken into custody for misbehavior or alleged crimes make an average 7.7 phone calls and send an average 42.6 e-mail messages a day from their cell phones. Their non-delinquent counterparts make an average of 2.7 phone calls and send out 30.5 e-mail messages on average a day (*The Japan Times*, 25. June 2004).

The worst and tragic case is that, after communicating wrongly with her fellow classmate via online exchanges, an 11-year-old girl admitted to killing her 12-year-old classmate with a box cutter at an elementary school in Sasebo, Nagasaki Prefecture in June 2004, this prompted people to re-think about the extent of problem of unsupervised e-mailing, and cyber-communications. Is cyberspace an incubator for the social reproduction of, both good and bad, social behaviors? (*The Japan Times*, 23. June 2004).

### 3.4 Social Adaptation towards Loving the Mobile Phone

The concern for the health risk of mobile phone is among the highest in medical and clinical environment, it is a common practice that hospitals and clinics forbid mobile phone use as the electromagnetic waves can cause pacemakers and other devices to malfunction. In Japan, most hospitals, clinics and medical facilities ban the use of mobile phones. But the government basically leaves use of mobile phones to each hospital, apart from certain locations such as the intensive care units and operating rooms.

In spite of the controversies over radio frequency interference on clinical instruments and the potential

impact on patients' health, Kyushu University Hospital has experimentally allowed its patients to use mobile phones on its premises since October 2003 to better serve their needs. Generally speaking, the trial outcome was a satisfactory one with no accidents, and the hospital officials confirmed the positive aspects of mobile phone use in clinical environment:

“Taking into account the feelings of the inpatients and convenience to the outpatients, the positives (of allowing mobile phone use) outweighed the negatives,” said Masao Tanaka, assistant director at the hospital. Yet, there is place, location and territorial limitation even within a pro-mobile phone use regime: the hospital allows the use of mobile phones in most areas, excluding the intensive care unit, operating rooms and wards where certain devices such as artificial respirators are in place (*The Japan Times*, 28. March 2004).

The risk-avoidance regime of not allowing using mobile phone is shifting to a more risk-acceptance one. For instance, a countrywide survey released in July 2004 highlighted that 80% of hospitals banned the use of mobile phones on their premises, 20% allowed to mobile phoning in designated areas, but more than 50% were considering allowing their use in the future to serve the needs of patients. Among institutions imposing a total ban on mobile phones within their premises, 51 institutions said they may review the ban to better serve the needs of their patients (*The Japan Times*, 8. July 2004).

It is obvious that the concerns for the electromagnetic waves emitted by mobile phones could cause such devices as pacemakers to malfunction have been mitigated and adapted with acceptance. But that does not mean to be a more care-free attitude towards mobile phone health risk, as there are still many people and professionals want to continue the segregation approach between the mobile communicative devices and that of the fragile people and sensitive equipments.

### 3.5 Social Acceptance of the Embedded Risks

As shown by the exceptional high mobile phone penetration rate, Japanese social adaptation to mobile (*keitai*) phone is more than obvious. It is also risk-free as commonly thought. But this should be drawn against the context that, in Britain, over 90% of children under 16s have their own mobile phone, though leading scientists have urged parents to stop

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children under 8 using mobile phones, arguing that there is still no proof they are safe (Ahuja 2005). All these are amid growing concern that parents and users are ignoring the warnings.

Japanese accept mobile phone and it embedded risks... there are several factors contributing to this. Firstly, the under-articulation, debates and controversies around mobile technology related health risks have the anchorage of people's acceptance (cf. Cox 2003). Here, the precautionary principle for risk-avoidance and abatement as part of the functional regulatory framework for mobile phone usages in Japanese case is instrumental to shape people's acceptance of the embedded risks.

Second, and more importantly, Japanese seem to have trust towards the mobile phone suppliers and their regulatory body, the government; therefore they are more inclined to accept the embedded risk – this is in line with other studies findings that trust on the social institutions one situates can increase the tendency for acceptance of health risks embedded in mobile technology (cf. Bostrom 2003, Burgess 2004).

Third, it is the logic of treating mobile phone as a personal asset, when '*machines that become us*' (rightly coined by James Katz, 2003) and we are very much dependent on mobile phone to keep our communications going, people are less articulated to reflect on the embedded risks of EMF for mobile phone. In other words, when mobile phone is part of our daily necessity for not just mobile communication, but also a sense of the identity of being, then it is not unusual for people to accept mobile communication risks (Ito et al. 2005).

Fourth, for individuals, mobile phone is not just a new form of access to global network of information, but also constitutes the new identity of the users who are functionally connected to the new world of communication (Grantham and Tsekouras 2003). Perhaps this is the most important aspect which enhances the acceptance for mobile phone, as a way of normal life, in spite of the embedded risks against his/her health.

Lastly, the individual and social acceptance of mobile phone has been reinforcing by the new consumerism, in terms of the fashionable and new worldview for new communicative outlook (Ito et al. 2005, cf. Ropke 2003); this is particularly true for younger generation, even in developing economies,

like China (cf. Wang 2005).

#### 4. Embracing Mobile Communication and its Embedded Risk in Future?

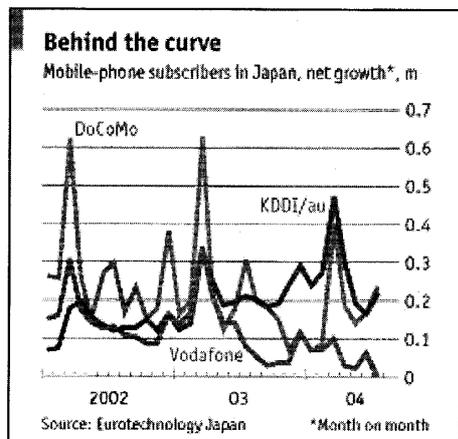
As mobile technologies are finding rapid acceptance at global level, and potentially narrowing the digital divides, people tend to love mobile technologies, vis-à-vis other futuristic technologies (Ito et al. 2005, cf. Dholakia and Zwick 2004). This has been the case for Japan!

Undoubtedly, the Japanese experience in mobile communication is a positive one – people are ready to accept the mobile gadgets, as NTT DoCoMo's i-mode, a modest, low-band mobile Internet service, has been successful in making Japanese consumers' acceptance of mobile phone, vis-à-vis USA (Ratliff 2004, cf. Rice and Katz 2003). Perhaps because of the readiness of people to accept new technology – in response to the calling from business corporate and the state for Information Society, issues on the embeddedness of health risk are under-articulated. In the remaining sections of this paper, I highlight some critical issues.

##### 4.1 The Risk-Taking Context: Intensifying Market Competition

Following the global trend of the liberalization of the communication market, competitions in terms of pricing and services among three major mobile phone companies, DoCoMo, KDDI and Vodafone, are intensifying recently (Fig. 6). As economic liberalization and de-regulatory forces in place, mobile communication market becomes more competitive in Japan. For instance, NTT DoCoMo Inc., Japan's largest mobile phone operator, introduced a flat-rate fee for e-mail, data-transmission and Internet services on mobile phones in June 2004 to undercut those of rival KDDI Corp. It let users of FOMA third-generation services use its i-mode service at a fixed rate of 3,900 yen per month. The company's move came after KDDI in November 2003 launched a flat-rate program for au mobile phone e-mail and Internet, charging 4,200 yen per month.

On the service and quality competitions, KDDI, which provides its mobile phone services under the au brand, has successfully challenge NTT DoCoMo and the latter lost its status as the No. 1 mobile phone company in Japan in terms of net increases

**Fig. 6: Mobile Phone Competition in Japan**

(Source: The Economist, 30.September 2004, online edition)

in subscribers in 2003. New service of KDDI includes international data roaming linking Japan and South Korea on the basis of au brand mobile phones. The service, to be provided in conjunction with SK Telecom Co. of South Korea, will enable mobile users to exchange e-mail and other data via the Internet in addition to making phone calls. NTT DoCoMo is developing similar international data roaming service to cover other parts of the world.

Vodafone, the late comer which taking over the J-Phone network, has launched services to for customers exchanging e-mail with photo and video data with overseas users who have compatible handsets on participating networks. It is the first time such a service has been offered in Japan: customers in Japan can send multimedia messages overseas by directly entering phone numbers with the Global Mail prefix and a country code.

The coming of the 'portable mobile phone number' regime in Japan in late 2005 will further intensify competition among mobile phone service providers, as consumers can choose from various new services and pricing regime yet keep their personal preferred phone number. An industry survey confirmed the mobility of consumers if mobile phone number is portable, that over 37% of them will be on the move to, and/or look for, alternative service provider.

The competition is not just within the territories of Japan. NTT DoCoMo is collaborating with SingTel Mobile, to launch a trial run to give their cell-phone subscribers reciprocal access to the

Internet via wireless local area network spots (Wi-Fi Hot Spots) in Singapore and some Japanese cities. This collaboration is strategically for capturing other major Asian cities' Wi-Fi international roaming service in the region.

Even the sourcing of revenue is shifting from the traditionally data-transfer-volume based pricing to new areas, as more mobile phone service providers exploit the opportunities from e-commerce, e-information and entertainment. For instance, DoCoMo recently set up a joint venture with Sony Corp. to market mobile phone handsets embedded with the FeliCa smart wallet, which also serves as a train pass and other cash transactions.

#### 4.2 Side-Lining Health Risk in a Highly Competitive Mobile Communication Market?

Very much like the competition among socio-political and economic issues for the framing and coverage of the news reportage, the concern for health risk is just one of the many (critical?) developmental issues for mobile communication market; perhaps it will be buried under the strong forces of information-advertisements and the propaganda for e-society, e-commerce, e-government and e-fantasy. This can be confirmed by the fact that, there is under-reportage (or more precise, under-scientific investigation and discovery) regarding the health risks embedded in mobile telephony: our investigation on the Japanese news coverage of health risk confirms that less than 5% of news addressing to such a concern.

Mobile phone becomes a necessity for Japanese, not just for communication, but also for many other functions. In short, it is becoming part of the human body! In 2005, mobile phones in Japan can serve as, e-money, e-shopping, interactive video-game player, membership card, security control ID card, train pass, information tag reader for shopping, and TV, among all the gadgets for mobile communicative actions. In reality, all three major mobile phone service providers, NTT DoCoMo, KDDI and Vodafone, are exploiting this new area of e-fantasies (cf. Ito et al. 2005).

#### 4.3 Mobile Data: Black Hole for Privacy?

Compared with health risk embeddedness of mobile communications, the concerns for data protection and privacy are articulated in Japanese society recently (MPHPT 2004): nearly one in

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ten major Japanese firms said they or their group companies have experienced leaks or losses of data featuring customers' personal information in the past two years, according to the results of a recent Kyodo News survey (*The Japan Times*, 7. May 2004).

Another related issue is about the controversies concerning the new central registry (*Juki Net*) with an 11-digit identification number which is to be issued for everyone. The system enables government agencies to access to each citizen's name, sex, address and date of birth. The network was planned to be put in full operation in August 2003 when electronic ID-cards will already have been issued. Many opponents of the system have doubts about the link established between the national database and local governments who act as administrators of the resident registration system (*juminhyo*) and family registration system (*koseki*). Both two systems store a major part of citizens' personal data (Lai 2003).

What Japanese fear most for is the security of the ICT-network system and protection of privacy in handling of personal data. Six municipalities, including Tokyo's Sugunami Ward, have boycotted a combined population of about 4 million. This occurrence has shown that many residents were worried about possible failure of security and invasion of privacy. Moreover, the actual number of critics and skeptics throughout the country is much higher. This fact points at the necessity to establish a legislation which shall effectively safeguard the privacy of resident data.

#### 4.4 Negotiating Critical Engagement towards Network based Risk Society

To embrace the offerings of informational society, the risk to children must not be underestimated, but it must also not be exaggerated. Technical and legal responses to such risks should be timely, appropriate, proportionate, effective and inclusive. Yet, there is more urgency for a strategic partnership between the state, civil society and ICT industries to adopt and holistic approach to safeguard the welfare of the users (Reid 2005).

In futuristic terms, the further development of 3G towards 4G mobile communication framework that enhances not just the heterogeneous dynamics configuration of the system, but also the empowerment of individuals and those underprivileged groups (Forge 2004). For Japan, it is already half way into the mobile e-fantasy world:

many social indicators show that people are very positive in accepting e-commerce, e-government and e-interactions, if not fully endorsing, the information society – the more they use their mobile phone and Internet, the more likely they are to become its beneficiaries. However, the public has still not been confronted with the question about indispensability and the embedded risk of the informational society.... At all rates, Japan is not the only country which is uncritical engagement with informational society.

On the background of (post-)modern dynamics and manifestations in Japanese society, our case studies highlight the ready acceptance of the embedded health risk for mobile communication, under the partially ubiquitous network society. But some people are concern about the privacy issues in information society – undoubtedly, this is a very good sign that Japanese demand for more time and space in order to reconsider further penetration of cyber-dynamics into their everyday life. In other words, there are still many issues referring to the ethical and normative aspects of informational society and its promotion. These issues need to be dealt with, whereas their solution must precede a further advancement of the informational society itself.

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