#### E-MOBILITY AND SUSTAINABLE INFORMATION SOCIETIES: JAPANESE PERSPECTIVES

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## INTRODUCTION

This presentation will put the notion of sustainable information societies in the context of e-mobility. The presentation will in particular address the relations between e-mobility and the development of sustainable societies in Japan.

#### SUSTAINABLE INFORMATION SOCIETIES

Information and communication technology (ICT) is expected to play a wide range of important roles in societies pursuing sustainability. These roles may be classified into three groups:

- Direct technological effects
- Indirect contributions through changes in the behaviour of individuals and organisations
- Promotion of the overall decision-making capability of a society

First, direct effects arise from the increased efficiency of manufacturing and other activities through the use of various information systems. Examples include remote control of air conditioning equipment to reduce energy consumption, energy savings in transport by the use of intelligent transport systems (ITS), etc.

Indirect contributions may arise through changes in lifestyle and working patterns enabled by use of ICT. For example, telecommuting saves not only workers' daily commuting time, but also the energy consumed in commuting. Other examples are the development of remote-sensing devices to monitor the state of the global environment, and the use of computerised bidding mechanisms for trading the right to emit carbon dioxide ( $CO_2$ ). These are a few of the many examples of possible ways in which ICT can contribute to sustainability.

There is one more way: ICTs can improve society's overall decision-making capacity to implement public policies for sustainability. Collective decision-making on public policies, however, is subject to political factors. In a democratic society, a collective choice that influences the majority can be sustained only with its consent. This means that the majority needs to understand the consequences of selfish patterns of behaviour. This must be done in order to accept the consequences of public policies that are useful for the global community as a whole in the long run, but may go against the direct short-term interests of individuals and communities (including the majority). In this sense the knowledge society is a prerequisite for sustainability, and ICT can play a role in building such a society quickly – hopefully before it becomes too late to get on the path to sustainability.

## THE E-MOBILITY CONCEPT

E-mobility is the combination of mobility for people and information. Communication is the mobility of information. Not surprisingly, e-mobility increases the efficiency of communication. However, when dealing with e-mobility, it is

important to understand the different attributes of communication. Figure 1 mentions some of these attributes. As the attributes show, there can be many types of interchange. E-mobility expands and improves upon the attributes.

- Number of participants (one-one, one-many, etc.)
- Distance between participants (face-face, telecom, etc.)
- Speed (instant, best effort, delayed, etc.)

Figure 1. Attributes of communication

E-mobility is indeed a big advancement in communication. It makes it possible to exchange information among those separated by physical distance, time difference, and participation entropy. I wish to discuss especially the latter component, in the context of what is happening in Japan with emobility.

# **E-MOBILITY IN JAPAN**

The penetration of mobile devices in Japan has grown rapidly during recent years. The high penetration rate will probably solve some of the problems that are associated with how Japanese society works. Today, about one of every two Japanese owns a mobile device. This is primarily due to the success story of NTT DoCoMo. This success story is due mainly to three factors.

First, DoCoMo is very good at developing new services in an efficient way. Services are both rich in value to the customers and sold for a low price. This is one of the reasons why the mobile device penetration in Japan is so high. Second, Japanese companies have most of the time been strong in manufacturing small things. Mobile devices in Japan are considered both reliable and cheap. This enables youngsters to get a mobile device at a reasonable price. Youngsters are one of the strongest drivers behind e-mobility.

Finally, the third factor is the Japanese culture. However, this factor is also related to the bad side of e-mobility in Japan. Nevertheless, to better understand why it has been the youngsters who have driven e-mobility forward in Japan, it is necessary to understand the Japanese culture. Many youngsters in Japan feel isolated. Why they feel that way is complicated to explain. One strong reason is, however, that they feel insufficient both in school and regarding what their parents expect from them. To deal with this dilemma, they have been trying to have their friends as close as possible. Hence, when DoCoMo offered i-mode as a new improved way to stay in touch with friends, it became a huge success. In other words, DoCoMo solves the problem of isolation that many Japanese youngsters feel.

## SOLVING JAPANESE CULTURE PROBLEMS WITH E-MOBILITY

The structure and culture of Japanese society have led to some problems. Japanese society is often divided and organized in small groups with about five to ten participants in each group. The communication in schools, government, companies etc. is very tight and closed within the groups. Moreover, the collective decisionmaking in Japan relies primarily on traditional means of communication. Thus, there

is a heavy use of face-to-face communication, direct consultation, meetings, etc. This has led to a lack of transparency and insufficient disclosure of information.

Altogether, the consequences have often caused concern. For example, decisions that are beneficial to the nation are frequently blocked by groups holding information, and sometimes power, on the matter in question. This can tend to promote economic stagnation and social deadlocks.

The e-mobility and e-politics in Japan may break the impediments to the disclosure of information. In addition, they may serve to organize the interest of the majority. I have already mentioned the number of potential benefits of ICT for sustainability. However, with the Japanese e-mobility applications, we find a new and fresh example of the deep possible repercussions in Japanese society.

#### PROPOSAL FOR WORLDWIDE E-MOBILITY AND E-DEMOCRACY

E-mobility has the ability to organize the interest of the majority of the human beings on the planet. As an example, e-mobility technologies can be used to support the COP3 agreements for limiting the emission of greenhouse gases, according to the Kyoto Protocol.

The COP3 agreements are for the sustainability of the global society as a whole. In order to deal with impediments to the implementation of the agreements, such as the objection recently raised by U.S. and other countries, we should use the power of ICT and e-mobility toward building a global knowledge society, in which a majority of the human being can agree upon the need to implement global policies for sustainability such as the COP3 agreements.