Japan's Challenge Toward a Ubiquitous Network Society

For the Coming New Age of Web

Executive Summary

(Summary: a Vision of a Ubiquitous Network Society)

In the process of digital informatization in which society as a whole changes due to the IT revolution, ubiquitous networking occupies the center stage.

In January 2006, the "New IT Reform Strategy" was put in motion as a national strategy with an aim of realizing "a society in which everyone can feel the benefit of IT whenever and wherever," namely, a ubiquitous network society. In addition, one of the growth strategies set forth at the national government's Council on Economic and Fiscal Policy in April 2007 was "service innovation through effective use of IT". Simply put, improving labor productivity and international competitiveness with the realization of a ubiquitous network society, is one of the most important challenges facing Japan in the second half of the 2000s.

What is the essence of a ubiquitous network society? Theoretically speaking, it is "a society in which a ubiquitous environment is realized." Here, the ubiquitous environment is "an environment where a user in real space can always be provided with the services of a virtual space." It will be possible for users to experience a variety of IT services with almost no awareness to the fact that it is occurring, while keeping the sense of living their normal, everyday lives in the real space.

More specifically, there are applications for improving production and distribution by "visualization" with full use of IC tags, sensors, cameras, etc., (inventory management, home delivery tracking management, etc.), vitalizing local communities by remote/decentralized processing (tele-working, e-learning, etc.), improving individual services by customizing information (road guidance, health check, etc.). However, what is really important is that not only do these applications need to be put into practice, but also that society needs to completely shed its old skin and the idea of a centralized industrial society. The key concepts for realization of a ubiquitous network society are "Petaloid Industries", "cross-sectional administration", and "online community", for suppliers (producers), appropriate authorities, and users (consumers), respectively.

(Summary: the Present State and a New Trend)

At present, a variety of pioneering applications are under experiment, and some are already being put to practical use. However, no fundamental significant social change as described above has come about yet. A reason given for this is that the approach is seeds-oriented, only from the supplier side, and does not involve general users. Another reason may be the widespread misconception that "ubiquitous networking is technology that uses RFID", which is too much a narrow interpretation.

A great success in terms of involving general users, is Web2.0, which is enjoying a boom also in Japan, since 2006. This is a kind of business movement in which Google and other web service companies are trying to dominate the IT industry by competing with Microsoft and other manufacturers. It basically involves the use of applications inside the virtual space (web space). In this sense, its properties are different from those of ubiquitous networking, which fuses the real space and the virtual space. The idea about security is also mostly the American style of self-responsibility, which is in clear contrast with ubiquitous networking where emphasis is on paternal leniency. However, Web2.0 is already succeeding in business, and its international strategy is attracting general users worldwide. There are many lessons to be learnt from Web2.0.

(Proposal: Our New Policy and Strategy)

Based on the above, we propose to achieve in the next ten to several tens of years, the following long-term objectives stipulated in LI and LII:

LI: To develop mainly user based emergent applications
LII: To promote international standardization

Here, LI is related to incorporating Web2.0. Web2.0 has brought the advertisement business into the information exchange among general users. If we expand and deepen this concept further, then a new direction will emerge in which both suppliers (producers) and users (consumers) can participate in online communities together. It will be no dream that new products and services emerge, the suppliers, competent authorities and users cooperate from the planning stage to the implementation and evaluation stages, thereby fostering petaloid industry type. In this process, deregulation by the appropriate authorities will be also important.

LII is to promote standardization both domestically and internationally, and to aim at the so-called "degalapagosianization" (avoiding an isolated evolution). It is criticized that Japanese IT products

are for produced for domestic demand and lack international foresight and strategies, even though the technology level is high. We have to develop for overseas markets as well.

The above are rather long-range objectives. It would be wise to focus, and set short-term objectives that can be achieved within five years or so, and to endeavor toward the achievement of the long-term objectives through realization of the short-term objectives. Therefore, we propose the following three short-term objectives:

SI: To make production/distribution/paperwork more efficient
SII: To make local communities safer
SIII: To make medical services more efficient

First, SI is particularly related to improvement of productivity on the work front. This has always been a field that Japan has been good at. It will be possible to significantly improve productivity in the manufacturing and service industries, if we advance standardization and realize a wide-area monitoring capability.

Next, SII is mainly to protect commuting school children. Terrible cases involving this issue are on the increase, and now securing safety for children is an urgent necessity. Attaching IC tags to their backpacks is one way; it is also important to make the entire community easy for parents to protect children by introducing tele-working or e-learning systems.

In addition, SIII is mainly to provide better medical support services for elderly people. The fiscal problem accompanying the aging society is fast becoming more serious and is now an urgent issue. Ubiquitous networking seems like a very practical way of achieving higher efficiency in the medical services by continuously checking the health conditions of elderly people who are suffering from chronic diseases to reduce their burden on hospitals, and by controlling the inventory of medicines and supporting communication in medical institutions.

In the process of achieving the above objectives, we propose the following JI, JII and JIII as important issues for discussion. These issues are too complicated to be listed as objectives, but we cannot realize a desirable ubiquitous network society without discussing these issues:

JI: To improve reliability/safety/ease-of-maintenance
JII: To improve moral/public-nature
JIII: To reduce environmental load

Here, JI can be regarded as the most important issue for the creation of a ubiquitous network society which is said to have "the ultimate network convenience and network vulnerability." Convenience (freedom) and vulnerability (risk) are in a sense in conflict, and there is no universal solution to this. However, it is important to set up a third party organization and enable it to secure the right to control peoples' personal information. Improving the maintenance service for a ubiquitous environment will also improve reliability.

JII is also deeply related to this issue. Services in a ubiquitous network require the collection of a great amount of personal information. If the trustworthiness of companies on the supply side fails and information leaks occur frequently, then users will raise their demands for protecting personal information and a ubiquitous network society will not be realized. Companies should emphasize CSR (Corporate Social Responsibility) and have good public awareness.

It is often overlooked, but actually JIII is important. If countless IC tags are distributed and intensive network processing is carried out around the clock, then electric power consumption will certainly increase. On the other hand, they will reduce unnecessary movements of people and things, thus energy-saving effects could be expected. It is desirable to make efforts to reduce the load on the environment through a total assessment of the outcomes of ubiquitous networking.