

MPHPT

July 15, 2002, Vol. 13, No. 7

Please feel free to use the articles in this publication, with proper credits

COMMUNICATIONS NEWS

Biweekly Newsletter of the Ministry of Public Management, Home Affairs, Posts and Telecommunications, Japan

Toward Diffusion of Time Business "Study Group on R&D of Time Validation and Time-stamping Services" Compiles Report

Since January 2002, MPHPT has been holding the "Study Group on R&D of Time Validation and Time-stamping Services" (Chair: Dr. OHASHI Masakazu, Professor, Faculty of Policy Studies, Chuo University) in order to study the future image of time validation and time-stamping services in the IT age, R&D themes, standardization problems, socio-economic effects and promotion policy for standard time distribution and time authentication services ("time business"). In June 2002, the study group compiled its outcomes as a report.

Recently, with the rapid spread of administrative procedures over the electronic commerce transactions and Internet, there is an increasing need to

accurately know the time at which transactions, applications and the like are performed over networks and to be able to verify the time to a third party. To this end, the development of new technology to improve the reliability of time distribution and the security of time-stamping as well as efforts to promote diffusion of the time business have become important tasks.

Against these backdrops, after a series of deliberations on the future image of

CONTENTS

- Toward Diffusion of Time Business - 1
- Release of White Paper 2002 "Information and Communications in Japan" ----- 2
- "Study Group on Policies Concerning the Effective Radio Spectrum Use" Compiles an Interim Report ----- 5

**International Policy Division,
International Affairs Department,
Ministry of Public Management, Home
Affairs, Posts and Telecommunications
1-2, Kasumigaseki 2-chome,
Chiyoda-ku, Tokyo 100-8926, Japan**

• We welcome your comments by:
feedback-newsletter@soumu.go.jp
Fax: +81-3-5253-5924
Tel.: +81-3-5253-5920

• MPHPT information is available at:
<http://www.joho.soumu.go.jp/eng/>

Toward Diffusion of "Time Business" Report from Study Group on Time Business

Current Status of Time Business

- The Japan Standard Time (JST) provided by the Communications Research Laboratory (CRL)
 - CRL provides JST using standard-frequency (JJY-LF) and a dial-up time service (Telephone JJY).
 - CRL started a trial time service using NTP for distributing JST. (April 2001)
- Launch of Time Validation and Time-stamping Services (Time Business)
 - The standard time distribution service started in the U.S. when the Order Audit Trail System (OATS) rules (all computer system clocks for stock transactions must be synchronized with the Coordinated Universal Time, or UTC) were introduced. (1998)
 - In Japan, NTT Data Corp. started the time-stamping service (2000); Amano Corp. started the time validation service (2001).

Future image of "time business"

- "Time Validation services" and "time-stamping services" will rapidly develop.
 - Time Validation services: providing contractors with the standard time, and monitoring the time
 - Deliver the standard time to servers of iDCs, ISPs or clocks of call centers, authenticate the validity of the time.
 - Synchronize clocks of "net game" servers with the standard time, for providing realtime "net games"
 - Others
 - Time-stamping services: providing electronic data distributed over the network with time stamps
Electronic tender/auctions, electronic filing, online trade, online shopping, etc.
- Market size of time business in Japan (forecast): about 150 billion yen in 2005 (13.4 billion yen in 2002)
➡ This market will grow to the scale of 3 trillion yen including peripheral and surrounding markets.

Policies for promoting "time business"

- Promotion of "time business"
 - Improvement and reinforcement of the CRL's time-business environment
 - Promotion of precedent introduction of time business into the government, local governments, public entities
 - Development of time business guidelines covering operational and technical aspects
- Promotion of R&D and standardization
 - Development and promotion of verification systems
 - R&D and standardization of time business platforms
- Promotion of global strategy
 - Deployment of time business as an Asian hub
 - Collaboration with Western and other countries in the fields of R&D and standardization

Establishment of inter-industrial forum for information exchanges

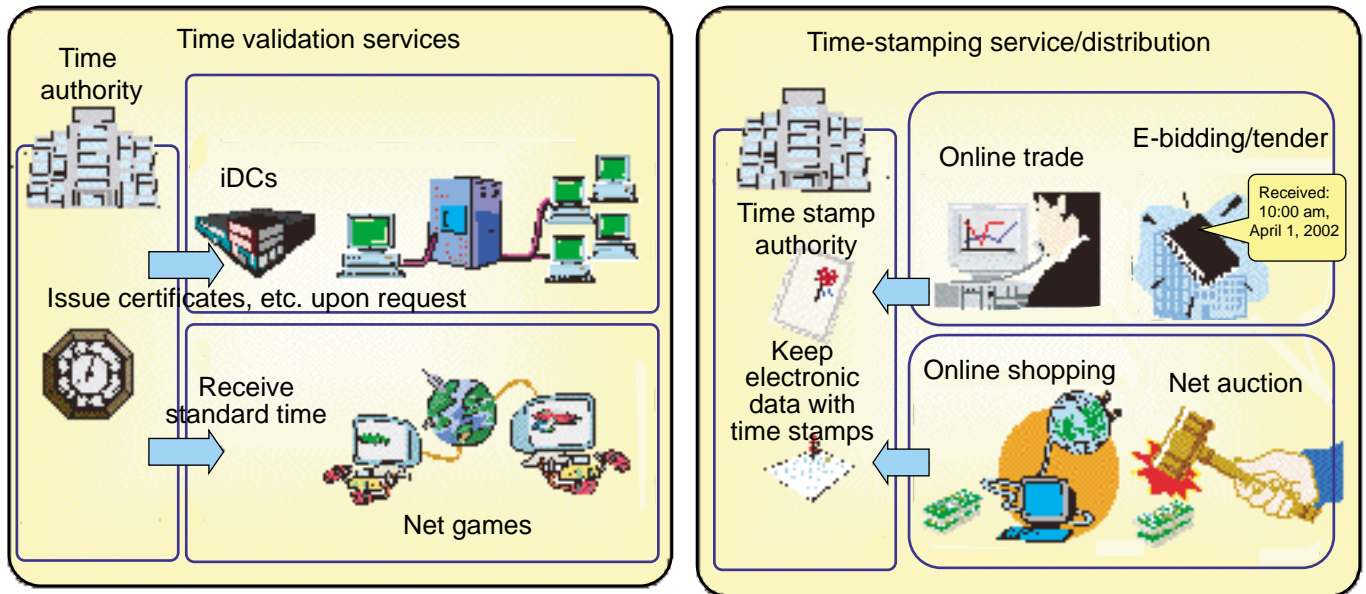
- Contributing to promotion of inter-industrial information exchange, verification experiments, standardization activities
- Promoting awareness campaign for diffusing time business

the “time business” and economic effects thereof, the report of the study group proposes comprehensive promo-

tion measures for this business. MPHPT will, paying due respect to this report, take necessary measures for

diffusion of the “time business.” An outline of the report is as follows:

Time business



Release of White Paper 2002 “Information and Communications in Japan”

MPHPT released the “Information and Communications in Japan 2002: WHITEPAPER,” after reporting it to the Cabinet meeting held on July 2, 2002.

With the purpose of having the people understand the current status of information and communications in Japan and trends in information and communications policies, MPHPT has been publishing the WHITEPAPER on an annual basis since 1973, this year marks the 30th WHITEPAPER.

Amidst the rapid penetration of the Internet and the on-going development of information and communications infrastructures such as broadband, there is a need for increasing the degree of utilization of information and communications technology (IT) in various fields in order to realize favorable outcomes such as the “creation of competitive businesses” and the “realization of a national life that evokes feelings of comfort and affluence.” It is from an awareness of

the issues discussed above that the feature section of this White Paper 2002 takes its theme, the “Stirring of the IT-prevalent Society.” We analyze the following areas: the status of the progress of the utilization of IT in all areas of business, public administration and everyday life; the distribution of appealing Web content, the maintenance of information security and the promotion of new services and technological development, all of which are cross-cutting themes in the development of IT utilization.

Feature of White Paper 2002: “Stirring of IT-Prevalent Society”

Penetration of the Information and Communications

- (1) Number of Internet users has increased to 55.93 million (second in the world) (as of the end of December 2001).
- (2) Number of subscribers to broadband circuits stands at 3.869 million (as of the end of March 2002).

Current State of the Use of Information and Communications and Issues for the Future

Individual

- (1) 66% of users regard the Internet as “indispensable.”
- (2) Expansion in Usage Range
 - Conventional usage focused on e-mail and information gathering
 - ➔ Usage for on-line shopping and auctions has increased.
 - ➔ Active use of on-line games, motion

picture viewing and e-learning, which are well-suited to broadband, is still in the future.

Issues for the Future :

- (1) The digital divide between different demographic groups and geographical areas remains to be solved.
- (2) Diffusion of broadband is essential for expanding applications to the next level.

Businesses

IT investments finished the basic infrastructure stage, with some investments pushing into such areas; as cost reductions and new market development.

- (1) Investments in basic infrastructure
 - ➔ nearly universal, with over 90% of companies making these investments (PCs for workers, LANs, groupware, etc.).
- (2) Investments to reduce costs
 - ➔ Many companies (40%-70%) make these investments (accounting and personnel systems, enterprise resource planning, and other sales support systems).
- (3) Investments to open up new markets
 - ➔ Some companies (20%-40%) make these investments (Electronic commerce, customer relations management and other sales-related systems).
- Issues for the Future: Companies understand that it is necessary to reengineer business and organizational systems along with IT investments.

Local Government

While the digitalization within local governments and the development of Web sites is progressing well, digitalization aimed at local residents such as the digitalization of administrative procedures involving applications, notices, and other such items, will need to be developed going forward.

- (1) In a self-assessment with respect to digitalization within

public agencies and the development of Web sites, it was found that 40-60% of local governments are satisfied with their progress.

- (2) At present, work is underway at implementing such IT systems as electronic filing of applications and reporting for the populace.
 - Issues for the Future:
 - (1) The local governmental bodies understand the importance of addressing issues such as cost reductions and human resource development in order to bring about e-government.
 - (2) It is important to assess the needs of the populace in order to promote e-government building upon the current circumstances in the local governmental bodies.

Cross-cutting Issue

Distribution of Appealing Content

- (1) Over the past three years, transmission of content over the Internet has increased 6.7-fold.
- (2) Internet users have concerns/complaints that “the transmission speed is slow” (55%), “personal information might be leaked” (50%), and “payment processes might not be correct” (45%), where these concerns/complaints must be resolved in the content business to be successful.

Data Security

Antivirus software and measures such as firewalls are nearly in place.

- ➔ Less than 40% of corporations have security policies in place or are performing security audits, etc.

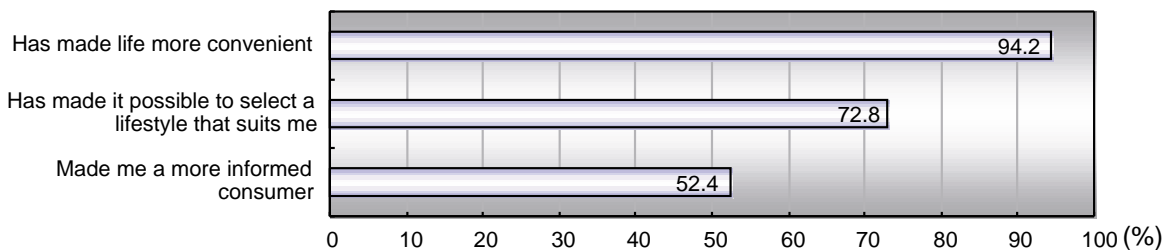
Research and Development

Use of the Internet in the future will shift to non-PC devices and become more ubiquitous.

- ➔ It is important to promote research and development of mobile terminal technologies, intelligent home appliances, and human interface technologies, in which Japan is particularly strong.

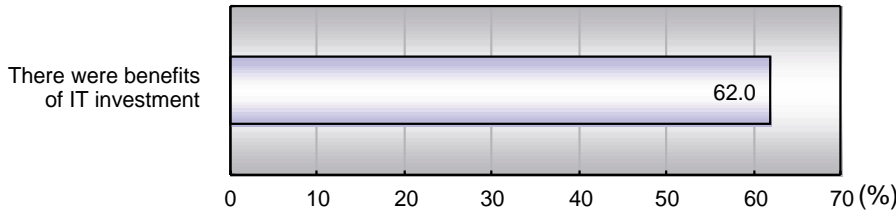
Evaluation of Degree of IT Utilization

Individual



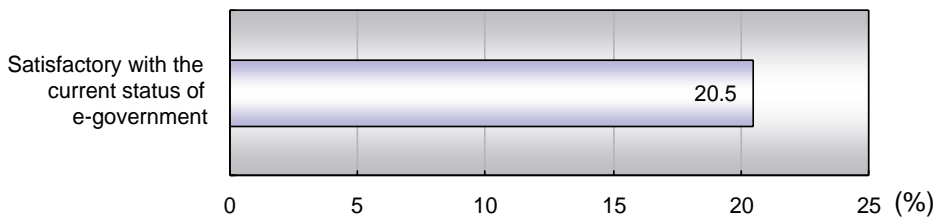
Total (%) of those who “strongly agree” and those who “agree” (Answers of individuals)

Business



Total (%) of those who answered “there were benefits in excess of the investment cost” and those who answered “there were benefits commensurate with the costs” (Answers of businesses)

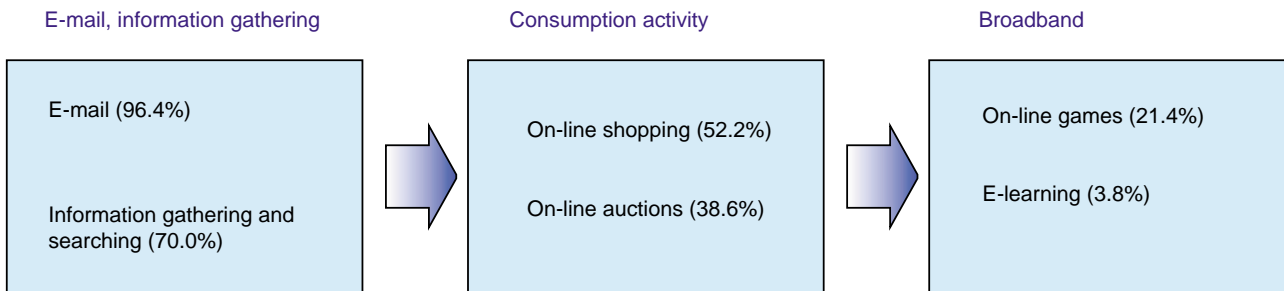
Local government



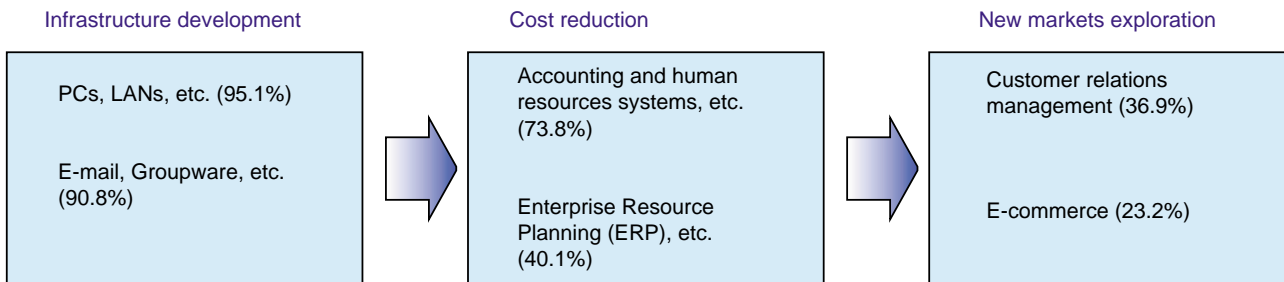
Total (%) of those who answered “very satisfactory” and those who answered “somewhat satisfactory” (Self-evaluation by local governments)

Increases in the Degree of IT Utilization

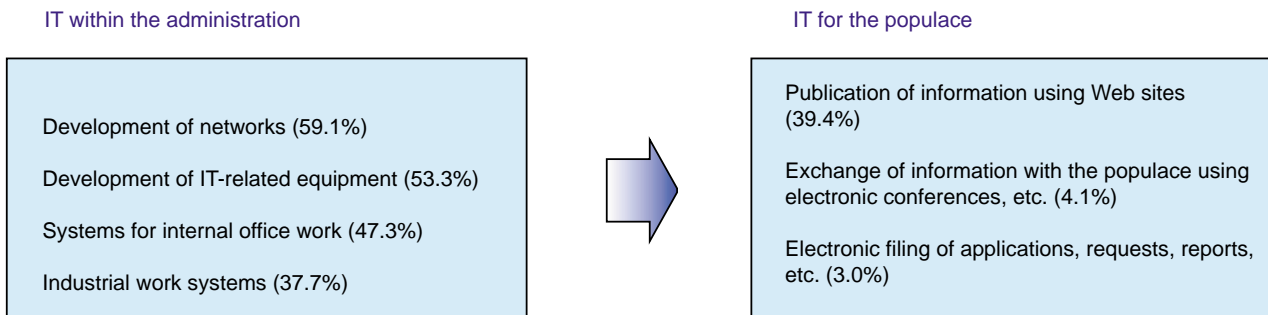
Trends in Internet Usage by Purpose (%) (Responses of individuals)



Proportion of Companies That Have Made Investments in IT (%) (Answers of businesses)



Local Governments' Self-Evaluation of the Current Status of E-Municipalities (%)



For more information, please refer to the URL below:

The White Paper 2002, Information and Communications in Japan (Summary):

<http://www.johotsusintokei.soumu.go.jp/whitepaper/eng/WP2002/2002-whitepaper.pdf>

Press release:

http://www.johotsusintokei.soumu.go.jp/whitepaper/eng/WP2002/press_information01.pdf

“Study Group on Policies Concerning the Effective Radio Spectrum Use” Compiles an Interim Report

MPHPT has announced an interim report from the “Study Group on Policies Concerning the Effective Radio Spectrum Use” (Chaired by TAGAYA Kazuteru, Vice President of Chiba University) which is held with the objective of studying new measures concerning the effective radio spectrum use, such as implementing swift and smooth transition of the radio spectrum and furthering progressing technological innovations. The study group was set up in January 2002, and has been investigating the matter above. The summary of the report is as follows.

Recent years have seen an increasingly serious shortage of the radio spectrum. Furthermore, the demands on the radio spectrum are increasing quantitatively and qualitatively (e.g., the demand of wider radio spectrum for broadband capability). This situation requires swift and adequate administrative measures to meet the new demand.

Traditionally, reallocation of the radio spectrum has been implemented through preparation of alternative radio spectrum and a preparation period lasting longer than 10 years. However, reallocation taking a shorter period or reallocation without alternative radio spectrum is likely to be implemented.

Assuming reallocation taking a shorter period and reallocation without alternative radio spectrum, the study group has been examining and clarifying the following issues in order to assess what measures should be taken to ensure effective radio spectrum usage such as measures for swift and smooth reallocations of radio spectrum.

I. Mechanism of reallocation of radio spectrum

1. Preparation period for spectrum reallocation
2. Necessity of compensation for incumbent licensees in the case of spectrum reallocations.
3. Source of revenue for compensation

II. Technical measures for promoting effective usage of radio spectrum

1. Promotion of technical developments for smooth spectrum relocation, etc.
2. Promotion of spectrum sharing with other kinds of radio stations
3. Incentive for promoting developments of technology for effective radio spectrum usage

I. Mechanism of reallocation of the radio spectrum

1. Preparation period

- 1) Reallocation plan

For reallocation of radio spectrum, matters such as the necessity of reallocation or preparation period should be clarified. This takes into consideration both the necessity for swift reallocation of radio spectrum and the necessity for protecting the position of existing licensees.

As a fair and clear procedure to establish the reallocation plan, a system was introduced for evaluating the degree of efficient use of radio spectrum upon taking national opinions into consideration by conducting a survey and publication of the status of radio spectrum usage.

Accordingly, it is appropriate to formulate a specific reallocation plan in accordance with the above procedure through clarification of objective criteria on matters such as the necessity of reallocation and the preparation period.

However, it is necessary to take note that there is a huge difference in economic effect on incumbent licensees between the case where alternative spectrum is prepared and the case where licensees are obligated to transfer to optical fibers following the formulation of the reallocation plan.

- 2) License period and implementation of reallocation

In the case of formulating reallocation plans in accordance with the procedures mentioned above, the case may exist in which it is appropriate to implement this

in spite of the fact that the license for each radio station is still valid.

Under the current Radio Law, as a matter of fact, it is difficult to implement reallocation within 5 years following the formulation of reallocation plan. Therefore, it is necessary to establish systems that enable implementing swift reallocation within 5 years when there is a public demand.

2. Necessity of compensation for incumbent licensees

- 1) Introduction of a compensation system

It is considered appropriate, as a measure to facilitate radio spectrum reallocations to meet the incumbent licensees' expectation of continuous radio spectrum usage, that the government compensates financially users who have invested on the assumption of continuous radio spectrum usage, for the parts for which the investment become unrecoverable such as the residual value of facilities, etc. due to policy changes.

Therefore, it is appropriate to introduce a system to compensate incumbent licensees for substantial losses. Further examination is thus necessary to establish the system.

- 2) Case of reallocation in which the compensation can be paid

Taking into account that the license period is five years, it is appropriate that the compensation can be paid in the case of reallocation whose plan in principle sets the final expiration date of spectrum usage within 5 years after the formulation of the plan.

However, as to the case of the spectrum usage (e.g., fixed relay stations) from which the licensees seem to expect continuous usage, it is necessary hereafter to study the payment of compensations in the case of reallocation whose plan sets the final expiration date of spectrum usage within a period longer than 5 years (limited to a period shorter than 10 years as a criterion).

- 3) Basis for calculating the amount of

compensation

- a) Basis for calculating the amount of compensation

It is appropriate to calculate the amount of compensation based on the residual book value of facilities and to exclude the cost of acquiring new facilities from the calculation basis.

In addition, it is necessary hereafter to examine whether it is appropriate to calculate the amount based also on the financial cost accompanied by the front-loaded acquisition of new facilities or based also on other factors.

- b) The timing of providing compensation

It is appropriate that the timing of providing compensation be set to the final expiration date of radio spectrum usage in principle and that the amount of compensation is calculated based on the amount of loss at the final expiration date.

Furthermore, it is necessary hereafter to study an incentive system to front-load the end of radio spectrum usage by providing compensation at the time that incumbent licensees actually finish using the radio spectrum.

3. Source of revenue for compensation

- 1) Contributions from new licensees

New licensees can enjoy certain benefits because reallocation of the radio spectrum responds to new radio spectrum demands. Therefore it is considered appropriate for new licensees to in-

cur certain expenses.

- 2) Contributions from all incumbent licensees

On the other hand, the escalation of the shortage of radio spectrum can be moderated as a result of reallocation of the radio spectrum, and therefore it is considered that all incumbent licensees as well as new licensees can benefit. Therefore, it is also appropriate to allocate the spectrum user fee to compensation costs of reallocation of the radio spectrum.

- 3) Balance of cost burden of new and incumbent licensees

It is considered that there is a difference between the extent of benefits that new and incumbent licensees can enjoy. It is therefore necessary to continue in depth study of the balance of cost burden between new licensees and all incumbent licensees, taking the opinions of nations into consideration.

Furthermore, it is necessary to study the case of introducing new license-exempt spectrum.

II. Technical measures for promoting effective usage of radio spectrum

1. Promotion of technical development for smooth spectrum relocation, etc

Technologies, such as software-defined radio technology that can change the radio frequency only by changing software, can reduce the economic burden or other aspects that arise for incumbent licensees when reallocation of ra-

dio spectrum is implemented, which contribute to facilitating the swift reallocation.

Therefore, it is necessary hereafter to categorize these technologies into technologies which can contribute to effective spectrum usage. It is also necessary to promote research and development aggressively.

2. Promotion of spectrum sharing with other kinds of radio stations

Taking into consideration the recent trend of increasing demand and the cost of introducing new technologies, it is appropriate to study technical measures which enable stations thought to usually have room for radio spectrum usage (e.g., fixed relay stations for emergency which use the spectrum band higher than 1GHz) to share radio spectrum with stations for other uses.

Furthermore, it is appropriate hereafter to undertake evaluation taking into consideration above issues in the case of survey and publication of actual radio spectrum usage based on the Radio Law.

3. Incentives for promoting research and development for effective radio spectrum usage

Ongoing study of incentives for promoting research and development for effective radio spectrum usage such as facilitation of field experiments is necessary.