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FY 2005 EContribution

ECOM Activity Results Report

Special Committee on RFID Tag/Traceability EC Safety & Security Group IT Utilization Group Technological Infrastructure Development Group International Relations Group Public Relations Group

Next Generation Electronic Commerce Promotion Council of Japan

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□ Contribution

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Note: FY 2005 METI RFID Tag Field Trials Liaison Meeting (Former name: FY 2005 METI RFID Tag Demonstration Experiment Liaison Meeting) FY 2004 RFID Tag Field Trials Meeting (Former name: FY 2004 RFID Tag Demonstration Experiment Meeting) Technological Infrastructure Development Group (Former name: Technology Infrastructure Development Group)

Contribution



Message from Chairman

Takuya Goto Chairman of the Next Generation Electronic Commerce Promotion Council of Japan (ECOM) (Chairman of the Board of Kao Corporation)

It is presumably more than twenty years ago that OA (office automation) was a predominant word in the business world. I remember that all companies were competing to improve efficiency under the slogan of "OA promotion". At that time, there was still a lot of paper work in the office, which could not be processed by very expensive mainframe computers. I think that the data entry of such paper information into word processors and personal computers was the first step toward OA. From a different point of view, it can be said that the correct manual data entry of as much information as possible into computers was a key point for successful OA promotion.

Such information processing led to OA promotion. Data necessary for operation management was extracted from books, and vouchers to be transmitted to other divisions and companies were gradually processed by computers. I think that manual data entry considerably decreased because of networking in not only mainframe computers but also personal computers.

I think that RFID tags as technological products are on the verge of bringing about further drastic change to information processing. Directly, RFID tags will significantly decrease manual confirmation and data entry tasks, which still remain in actual operation, and indirectly, the many varieties of new value created by that decrease will have a remarkable effect on our business and life.

However, as is shown by great history-making innovations, a generation change is not caused only by a technological factor. For example, we might now tend to think that sailboats, which were "at the mercy of the winds", must have immediately lost their presence after steamships appeared in history. It is said, however, that it actually took more than 100 years for the replacement to be completed. In other words, without changes in the surrounding society, it is not easy for a new technology to become fully popular. Needless to say, commerce relations cannot be established without business partners. In electronic commerce, business transactions are conducted across corporate, industrial and national borders and other similar barriers, and the social factors that need to be taken into account will increase by just that much.

The Next Generation Electronic Commerce Promotion Council of Japan, which was established in April 2005 with support from the Ministry of Economy, Trade and Industry, aims to further promote electronic commerce by making use of new technologies, including RFID tags. It aims to bring about actual changes by introducing the technologies into the actual business world and putting them into practical use. I hope that more people will recognize the importance of our activities through this journal and that more companies will support our objectives and join us as new members.

Promoting of New IT Strategies and Expecting for Next Generation Electronic Commerce Promotion Council

Masakazu Toyoda Director-General, Commerce and Information Policy Bureau, Ministry of Economy, Trade and Industry

First of all, I would like to express my deepest gratitude to many member companies, researchers and the Secretariat staff of the Next Generation Electronic Commerce Promotion Council of Japan, for their continued strong support and cooperation in the promotion of information policies.

In the Japan's economy, both the corporate sector and the household sector are achieving better results. The IT industry is witnessing continuous technological innovations and intensified international competition, and the service industry is becoming important in the midst of a trend toward a service and software economy.

Commerce and Information Policy Bureau of METI aims not only to maintain and strengthen the vitality of the information industry and the service industry but also to enrich the life of the people by making strategic use of IT technologies, creating new services, and taking other similar measures.

Under the "e-Japan Strategy", our IT condition has been made great progress in terms of development and diffusion of IT infrastructures and breakthroughs in electronic commerce. On the other hand, it is necessary to further promote IT to provide strengthened solutions for social problems, such as Japan's aging society coupled with its declining birthrate.

In these circumstances, the IT Strategic Headquarters formulated new IT strategies in January, 2006, with the aim of completely reforming Japan's economy through IT. To attain this aim, we will implement new measures and policies in accordance with the following three core objectives: "enhancement of industrial competitiveness through the promotion of the strategic use of IT", "promotion of strategic technological development" and "development of safe and secure infrastructures for an IT society from the viewpoint of users and citizens".

In particular, with regard to industrial competitiveness, Japan is one of the most advanced nations in terms of the market of electronic commerce and the use of RFID and other similar technological products. It is important to construct a positive-growth-cycle structure that is based on both the IT industry, which boasts the superior qualities, and the IT-utilization industry, which can not only improve operational efficiency but also create new added value. This is important in order to maintain and strengthen Japan's world-leading international industrial competitiveness through the establishment of IT management, rather than following the traditional catch-up business model. It is also needed to advance a reform of the Japan's industrial structure.

We will make efforts across the Ministry to promote IT strategies for all kinds of issues, including electronic commerce, based on cooperation between Commerce and Information Policy Bureau and Commercial and Distribution Group, Manufacturing Industries Bureau, Small and Medium Enterprise Agency and other related departments.

Next Generation Electronic Commerce Promotion Council (ECOM) is making efforts to promote the use of RFID and to develop an environment for promoting electronic commerce. We recognize that these efforts are made in anticipation of the development and promotion of an internationally harmonized environment for electronic commerce and the establishment of a business model ahead of the rest of the world. The results of these activities will contribute to the sophisticated use of IT and to an increase in competitiveness and problem-solving capabilities in the entire Japan's industrial community. Your support and cooperation is definitely needed.

We have great expectations for the future activities of ECOM, as its fulfills its role as a core organization for continuously promoting next generation electronic commerce in a new stage of IT diffusion, toward building an IT-based strong nation, in organic cooperation with related organizations.

ECOM Activity Results Report

Special Committee on RFID Tag/Traceability

EC Safety & Security Group

IT Utilization Group

Technological Infrastructure Development Group

International Relations Group

Public Relations Group

Next Generation Electronic Commerce Promotion Council of Japan

- Activity Report for FY 2005 -

Founding Prospectus and Activities

ECOM was founded in 1996 as the Electronic Commerce Promotion Council of Japan under the guidance of the Ministry of Economy, Trade and Industry (Ministry of International Trade and Industry at that time) and changed its organization under the same English name (Electronic Commerce Promotion Council of Japan) in 2000 (as a result of incorporation with the Japan EC/CALS Organization). ECOM consistently aims to promote the sound development of electronic commerce (EC) in Japan, and has been making efforts to establish rules to ensure secure EC for both general consumers and business-to-business transactions, to conduct a wide range of activities including surveys, research projects and proposals on consumer protection, security measures, the use of electronic government and other similar issues, and to advance international standardization based on the needs of users.

In April, 2005, in response to the development and diffusion of RFID tags, which are positioned as the second-stage core technology for IT promotion in our country, ECOM was reorganized into the Next Generation Electronic Commerce Promotion Council of Japan, for the purpose of not only taking over the results of previous activities but also contributing to the establishment of EC in a new phase in response to new technologies, including RFID tags. Under this new structure, the ECOM started to implement new activities.

Table 1. Activity Objectives (from the founding prospectus)

Development of IT utilization into a new stage ahead of the rest of the world

 Creation and diffusion of high added value with new technologies such as RFID tags

- Development of a safe and secure EC environment with a high level of credibility and security
 Establishment of international electronic commerce in response to the
- bestablishment of international electronic commerce in response to t borderlessness of business

Organization

The organization of ECOM for FY 2005 (see Figure 1) consisted of groups in charge of the evolution of next generation EC in the areas of the utilization of RFID tags/traceability, safe and secure EC, and IT utilization (survey of current status and market scale of e-business in FY 2004 /electronic governments), a group in charge of developing technological infrastructure for next generation EDI, an international relations group and a public relations group in charge of publicizing activities of ECOM, both of which implemented cross-cutting activities, and a general affairs section and an accounting section, both of which supported the above-mentioned activities. The JIPDEC / Electronic

Overview

Commerce Promotion Center (JIPDEC/ECPC) served as the Secretariat of ECOM.

ECOM activities were carried out mainly by the 177 member companies (board members: 24, regular members (A): 54, regular members (B): 97, special members: 2, as of the end of March 2006, reference to the data at the end of the journal.) For ECOM's core activities, working groups (WGs), which had anywhere from a dozen to dozens of ECOM members as participants, were organized according to themes in each area. WG members carried out activities including studies and open-ended discussions on individual themes and exchanged opinions with the government, industry groups and users (companies and consumers). (See Figure 2.) The outline of activities of the Planning Committee and activity results of each WG is presented on the next page.



Figure 1. Organization Chart of ECOM



Figure 2. WG Activities of ECOM



The Planning Committee is a decision-making body for daily activities and consists of board members. It supports the management of activities of ECOM by examining the direction of activities, approving the activity plan, recruiting activity members, and taking other similar measures. After Chairman and Vice Chairman were elected at the first meeting of the Planning Committee, seven meetings (as is shown in the Table 1: History of Meetings) and a workshop on the diffusion of RFID tags were held under the leadership of the committee. Activity results of the Planning Committee are summarized below.

Report on (the results of) Activities for FY 2005 and Formulation of an Activity Plan for FY 2006

Activity results for the first half of FY 2005 were reported at the fourth meeting of the Planning Committee, and activity results for all of FY 2005 were reported at the sixth meeting. At the sixth and the seventh meetings, the committee members examined the activity plan for FY 2006 while gathering activity proposals from members, and formulated the activity plan for FY 2006 by incorporating those proposals.

Examination of the Direction of Activities

The Planning Committee examined the direction of activities by planning and approving the activity plan, recruiting activity members, holding a workshop, reporting diffusion and PR activities and taking other similar measures. FY 2005, in particular, the fourth meeting of the Planning Committee was held at the Awazu Plant of Komatsu Ltd. owing to the company's cooperation as a board member. After the meeting, the participants saw the inside of the plant and exchanged opinions on RFID utilization methods for production innovation.

Planning and Approval of the Activity Plan for FY 2005

At the first meeting of the Planning Committee, the members reviewed the activity plan for FY 2005 that was proposed by the Secretariat, a system for promoting cooperation among relevant organizations in relation to RFID tags, and the detailed activity plans of individual WGs. At the second meeting, they approved the activity plan that was proposed by the Secretariat and started to gather activity proposals from members. At the third meeting, they reviewed the "Activity Plan for FY 2005 (Revised)" in response to proposals from members concerning two new activity themes.

Recruitment of Activity Members

Based on the activity plan that was approved at the second meeting of the Planning Committee (including details) and an approval for recruitment of members by board members and regular A members, Secretariat recruited WG members from June 16 through June 27. Based on a recruitment report at the third meeting, specific activities started in June with approximately 300 registered WG members.

Table 1. History of Meetings (held by the Planning Committee)

| Meeting | Agenda Date | |
|----------|---|--|
| First A | pril 26, 2005 (Tuesday) | |
| | Greetings from the Director of ECOM Election of Chairman and Vice Chairman Report on new membership application (on and after March 24, 2005) Report on the activity plan for FY 2005 and the joint committee Report on (detailed) activity plans of individual WGs for FY 2005 Report on the implementation plan for "ECOM Forum 2005" | |
| Second | May 13, 2005 (Friday) | |
| | Activity plan for FY 2005 Recruitment of WG members and gathering of new activity themes Schedule of the "Board of Directors", "Planning Committee", etc. Announcement of "ECOM Forum 2005" | |
| Third J | lune 23, 2005 (Thursday) | |
| | Report on the recruitment of ECOM WG members for FY 2005 Activity plan for FY 2005 (revised) Budget balance for FY 2005 (revised) Holding of the first Board of Directors meeting in FY 2005 Report on "ECOM Forum 2005" held | |
| Fourth | November 30, 2005 (Wednesday) | |
| F (| leld in a meeting room of the Awazu Plant of Komatsu Ltd. Komatsu City, Ishikawa Prefecture) | |
| | Activity report for the first half of FY 2005 Whole report Special Committee on RFID Tags/Traceability Information Security Workshop Workshop of the Planning Committee Report on diffusion and PR activities | |
| | Visitation to the Awazu Plant, Komatsu Ltd. | |
| Fifth Ja | anuary 23, 2006 (Monday) | |
| | Contents of activities for FY 2006 Activity groups and plans proposed by the Secretariat of ECOM | |
| Sixth F | ebruary 23, 2006 (Thursday) | |
| | Contents of activities for FY 2006 Activity plan for FY 2006/activity groups (draft) Activity plan for FY 2006 (draft) Activity plan for FY 2006 (proposals from members) Outline of activity results for FY 2005 (schedule) | |
| Seventh | March 6, 2006 (Monday) | |
| | Activity plan for FY 2006 (draft) Budget balance for FY 2006 (draft) Report on (estimated) settlement of balance for FY 2005 Report on monthly seminars for FY 2005 | |

Special Committee on RFID Tag/Traceability

Masaaki Higashino, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

Special Committee

Overview of Activities

The Special Committee on RFID Tag/Traceability carries out activities for the purpose of achieving a seamless sharing of information through the use of RFID tags. Specifically, based on international standardization trends, the Special Committee aims to promote efforts to (1) establish base technologies for integrating expressions of information toward achieving a shared understanding of product information and other information that is exchanged across business sectors and between businesses internationally; (2) establish an environment to resolve common cross-sector problems and social problems associated with the introduction and application of RFID tags, so as to improve the social acceptability of RFID tags; and (3) utilize these efforts to accelerate the introduction and practical application of RFID tags and to streamline energy use in Japanese companies through the optimization of entire length of supply chains.

To achieve the above objectives, the Special Committee must

consider the RFID tag application models needed to achieve an optimization of the entire length of a supply chain, as well as the data elements that would be necessary in those models. To this end, the Special Committee conducted a current situation survey concerning such issues as the system environment and business operations that utilize product information and similar data, such as the product information that is handled by businesses involved in a product life cycle. To ascertain the common problems associated with the introduction and application of RFID tags and the benefits gained from introducing the tags, the Special Committee also conducted a survey on information sharing between businesses. For the same purpose, the Special Committee also interviewed businesses that have introduced and use RFID tags and studied advanced overseas cases in Europe and the United States.

Based on the results of these surveys, the Special Committee formed organizations to address and resolve common problems associated both with RFID tag application models for product life cycles and with the efforts to implement such models.



Figure 1. WG Activities for Project Objectives

These organizations include the "FY 2005 METI RFID Tag Field Trials Liaison Meeting" for the METI field trials, the "RFID Tag/Traceability Promotion WG", the "International RFID Tag Utilization Promotion WG", and the "Diffusion Promotion/Social Acceptability Studies WG". The WGs' members include academic experts on advanced cases of RFID tag use, business organizations and businesses. These organizations have performed the studies explained below.

The Special Committee also held the "FY 2004 RFID Tag Field Trials Meeting" to introduce ECOM members to the gathered know-how, and conducted international traceability joint research to investigate the possibility of utilizing RFID tags in ASEAN member countries.

Activity Results

(1) RFID Tag/Traceability Promotion WG

To ascertain common problems associated with the use and application of RFID tags across different businesses, this WG established the "RFID Tag Field Trials Analysis Task Force (TF)" consisting of businesses and other organizations that participated in the FY 2004 RFID tag field trials. This task force carried out a cross-sector survey and analysis regarding the results of field trials conducted in seven business sectors in FY 2004. Based on the results of the various surveys conducted in the same fiscal year, the WG formed the "Product Life Cycle TF" to study the full optimization of product life cycle management using RFID tags. This task force identified the types of business reforms that make it possible to see business process improvements through the sharing of information between businesses. The task force also studied the various requirements for the introduction and application of RFID tags that are necessary to achieve a full optimization of a product life cycle, as well as the related common problems and methods for addressing those problems.

(2) International RFID Tag Utilization Promotion WG

In preparation for the use of high-added-value RFID tags with large memory capacities, which are expected increase in size in the future, this WG prepared a comparison chart of data elements that are stored outside the region used for identification (user region). This was done by performing a study of various standards for storage data elements. This includes standards related to RFID tags, such as ANSI MH10.8.2 (data identifier and applied identifier standards), ISO/IEC15434 (syntax for high-capacity AIDC media) and ISO/IEC7372 (trade data elements), and other standards that define data elements related to high-capacity AIDC media and EDI (Electronic Data Interchange). In addition, the WG reviewed results of the FY 2004 field trials and the survey of actual conditions conducted in FY 2005, in order to examine the needs of business sector groups and consistency with international standards. This allowed the WG to identify inconsistencies and problem areas and compile proposals for revising international standards.

(3) Diffusion Promotion/Social Acceptability Studies WG

This WG made several efforts toward improving the social acceptability of RFID tags and resolving related social problems. It conducted a study concerning trends in technology developed in order to protect privacy of consumers when RFID tags are used. As part of efforts toward establishing an environment to resolve related social issues so as to improve social acceptability, the WG also created a web page to educate the public on RFID tags and held RFID tag diffusion seminars in three locations (Sapporo, Nagoya and Fukuoka).

(4) FY 2005 METI RFID Tag Field Trials Liaison Meeting

The members of this unit worked to facilitate the field trials and studied matters that they should propose for international standards as actual users of RFID tags. Participants included project members of the eight field trials projects conducted in the same fiscal year, members of the Hibiki Project, and experts in RFID tag international standards and other related fields. Five liaison meetings were held.

(5) FY 2004 RFID Tag Field Trials Meeting

Based on the results of the analysis of FY 2004 field trials prepared by the "RFID Tag Field Trials Analysis Task Force (TF)", a workshop was held for ECOM members so as to educate them on the achievements of the field trials.

(6) International Traceability Joint Research WG

In FY 2005, field surveys of five countries were conducted to examine the possibility of using RFID tags in ASEAN member countries. In March, the results of these surveys were compiled together with the information gathered in the FY 2004 field surveys, in a survey report on 10 countries.

Future Expectations

In the spring of 2006, it is expected that international standards for the base standards of RFID tags will be established. In addition, a low-priced Hibiki tag should be completed in August 2006. Following the consortium in the book and publishing industry, the consumer electronics industry also established a consortium in October 2005. The appearance of low-cost RFID tags and the increasingly closer collaboration seen between industry consortiums, related institutions, RFID tag vendors, SI companies and users should continue to produce solutions to the various problems seen overall in SCM systems where RFID tags are used.



Overview of Activities

The RFID Tag/Traceability Promotion WG conducted studies and research with the purpose of establishing a platform for an open, seamless sharing of information as shown in Figure 1. The use of EDI (Electronic Data Interchange) for the receipt and placement of orders between companies would make it possible for RFID tags to be used by all entities associated with a product, including the related consumers, during the entire product life cycle. In other words, RFID tags could be used as the raw material, parts, and products affixed with RFID tags flow from the raw material and part manufacturers to the assemblers, distributors, wholesalers, retailers, consumers/ businesses, maintenance service providers and recycling businesses.

Building an information sharing platform means that businesses involved in the product life cycle provide each other with information so that each party can make use of that information. For example, a business could obtain information on counterparty sales or customer acquisition of products in a timely and accurate manner and incorporate that information into its production planning and product development. A corporate business could obtain inventory information in an accurate and timely manner using RFID tags (constant monitoring) and incorporate that information into production and shipment planning. Information could also be used to improve the efficiency of marketing activities and to increase sales by preventing defective products. In this way, the use of information of other transaction counterparties using RFID tags makes it possible for companies to have a more efficient system of IT business management.

Another significance of building an information sharing platform is that it contributes to energizing the business sectors overall, by optimizing the overall product life cycle, so as to prevent such problems as the creation of inefficiencies and the inefficient use of energy. Furthermore, the features offered by RFID tags (such as the ability to be read even when covered or at far distances and the ability to manage individual items) make it possible to better visualize the items and processes involved, to integrate commercial distribution and product distribution, to integrate production and sales, and to create a highly accurate SCM (supply chain management) system by incorporating detailed information obtained by RFID tags into a core system in a timely manner. In turn, this leads to companies with a stronger competitive edge.

There are two basic requirements for this information sharing platform. (1) The product life cycle participants, such as companies and consumers, must be able to access the RFID tags attached to components, products and other objects to obtain information that is written on the RFID tags. For product information that is not written on the RFID tags, the



EDI for receipt and placement of orders

Figure 1. Product Life Cycle Management Using RFID Tags

participants must be able to use a product identification code or similar code written on the RFID tag to access, via a network, a database that contains the necessary information, so that they can obtain more detailed product information. (2) The obtained information, whether it is information written on a RFID tag or information gained through EDI, must follow a rule or structure that anyone can understand.

To study requirement (1), this WG established a task force to analyze the results of the METI 2004 field trials (TF1) and a product life cycle task force to study the optimization of an entire product life cycle using RFID tags (TF2).

In these studies, the WG conducted a survey of companies involved in the consumer durable goods that make up a product life cycle, that is, companies in the consumer durable goods industries, in which there is a strong need for achieving a recycling-oriented society and a strong desire for environmental measures. Specifically, the survey targeted the office equipment business sectors that handle reusable products, such as toner cartridges, and the electronic equipment business sectors that use high-mix low-volume cell production systems to meet customer needs.

The survey content included details of inter-business coordination, data elements shared between businesses, parties obtaining product information and similar data, data acquisition methods, volume of data, frequency of obtaining data, overview of information systems owned by businesses, operations using automatic recognition technology in the information systems, codes used in the information systems and EDI.

Based on the analysis of this survey and the results of the FY 2004 field trials, the WG studied the use of information with RFID tags from the perspective of corporate strategy, including improvements to the business processes of each company involved in a product life cycle through the use of RFID tags. The WG also studied the various requirements needed to achieve an optimized management of a product life cycle by using RFID tags. A history of these activities is shown on Table 1 and the results of these activities are described below.

Activity Results

(1) Consideration of the Benefits Gained by the Introduction and Application of RFID tags

The WG conducted a cross-sectional analysis of the results of the FY 2004 field trials, interviewed participants in the field trials about the benefits of introducing RFID tags, and conducted surveys of companies that have already introduced RFID tags. Based on the information obtained by these actions, the WG identified the operational benefits and cost effectiveness gained by using RFID tags, as well as the problems associated with introducing and applying RFID tags and the corresponding solutions.

(2) Consideration of Proposals for Achieving an Overall Optimization of Product Life Cycles through the Use of RFID Tags and the Related Requirements

The WG identified the advantages gained by a full optimization of a product life cycle through the use of RFID tags. At the same time, the WG identified the information that must be shared between businesses from a corporate strategy perspective, the advantages offered to each business by sharing information, the business operations that can be improved, and the various requirements necessary for achieving a full optimization of a product life cycle through the use of RFID tags, including requirements for sharing information between businesses, requirements for using shared information and requirements for RFID tags.

Future Expectations (Summary)

In this fiscal year, the WG considered proposals for measures to achieve a full optimization of a product life cycle through the use of RFID tags, and the requirements necessary to achieve those proposals. Future studies will include (1) measures for businesses that do not have an IT infrastructure (including the consideration of the use of ASP services, joint development of common systems, alternative systems based on spreadsheet software, etc.); (2) studies regarding coordination with overseas businesses when part of the product life cycle is carried out overseas in a global environment; and (3) studies of RFID tag functions and application methods necessary to achieve a product life cycle that includes consumers. These studies must be conducted in accordance with the diffusion of RFID tags.

Table 1. History of the Activities of the "RFID Tag/Traceability Promotion WG"

| Category | Meeting | Date | | |
|----------|---|---|--|--|
| | Activity Description | | | |
| WG | First | August 25, 2005 | | |
| | Reported study and research areas for the fiscal year, trends in international standardization for RFID tags and the latest status of EPCglobal | | | |
| TF1 | First | September 30, 2005 | | |
| | Policy concer in FY2004 | ning cross-sectional analysis of results of METI field trials | | |
| WG | Second | October 6, 2005 | | |
| | Discussed re trials and rep | sults of the cross-sectional analysis of the FY 2004 field other WG activities | | |
| TF1 | Second | October 13, 2005 | | |
| | Considered RFID tag specifications, based on discussions in the second WG meeting | | | |
| TF1 | Third | November 1, 2005 | | |
| | Considered in discussions in | ntroduction/application of RFID tags, based on the second WG meeting | | |
| TF1 | Fourth | November 5, 2005 | | |
| | Considered operational improvements and cost effectiveness in the introduction and application of RFID tags | | | |
| WG | Third | December 15, 2005 | | |
| | Discussed re FY 2004 field cycles | iscussed results of the cross-sectional analysis of the results of the 4 2004 field trials and reported company survey about product life tricles | | |
| TF2 | First | January 6, 2006 | | |
| | Considered matters for the full optimization of product life cycles using RFID tags | | | |
| TF2 | Second | January 26, 2006 | | |
| | Reviewed the considered matters to be examined for full optimization of product life cycles using RFID tags | | | |
| WG | Fourth | February 1, 2006 | | |
| | Discussed results of examination concerning full optimization of product life cycle and considered benefits gained by introducing RFID tags | | | |
| TF2 | Third | February 22, 2006 | | |
| | Considered achievement of full optimization of product life cycle, based on discussions in the fourth WG meeting | | | |
| WG | Fifth | March 1, 2006 | | |
| | Discussed achievement of full optimization of product life cycle and reported RFID tag trends in United States and Europe | | | |
| TF1 | Fifth | March 10, 2006 | | |
| | Reviewed results of the analysis of FY 2004 field trials | | | |

FY 2005 METI RFID Tag Field Trials Liaison Meeting FY 2004 RFID Tag Field Trials Meeting

Masatomo Takemoto, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

Liaison meeting & Workshop

FY 2005 METI RFID Tag Field Trials Liaison Meeting

Overview of Activities

The FY 2005 METI RFID Tag Field Trials Liaison Meeting was established to facilitate the field trials by providing a venue for sharing information between the 8 projects implementing the field trials (see Table 1) and the Hibiki Project (that is, providing a venue for cross-project sharing of technological know-how concerning RFID tags). In addition, the Liaison Meeting was also used as a venue for product coordination with the Hibiki Project, which worked on the development of low-cost RFID tags.

Activity Results

[Facilitating RFID tag field trials, identifying common problems, and considering solutions to problems]

To facilitate the field trials, problems and challenges were shared between projects to find early solutions. Specifically, report sessions and discussions were held over the course of 5 meetings, based on the following common themes.

- (1) Process management
- (2) Hibiki tag prototype evaluation
- (3) Reports to the candidate selection committee
- (4) Setting of aggressive targets for each theme
- (5) Contributing to international standardization activities

Efforts related to (1) lasted approximately half a year, from the selection of the field trials to the completion of the experiments. In view of the circumstances of the previous fiscal year, this process management was implemented to ensure that the applications for RFID tag devices, the evaluation tests of the

Hibiki tag prototypes, and other activities did not adversely affect the experiments.

With regard to (2), user needs (in the experiment field) were incorporated into the development side efforts so as to achieve an introduction evaluation in the actual field and to share user specifications and other information with the Hibiki Project.

With regard to (3), when the field trials were selected, a third party committee (the candidate selection committee) made up of academic experts and other individuals was established. Interim reports on the status of experiments were made to this committee.

With regard to (4), reports were made concerning the objectives for the themes (industry restructuring, new industry creation, inter-industry collaboration and international collaboration), the economic benefits for business processes, the trial computation of cost effectiveness, and other related concepts.

With regard to (5), to promote efforts to strengthen the international competitiveness of Japan's industries and businesses, Japan's position as a trading nation, and the active use of RFID tags internationally, it is necessary to proactively contribute to and encourage international standardization efforts. Also considered important is reporting the effectiveness and performance of RFID tags in the actual field (that is field trials) to international standardization committees and other organizations. At the ISO Kyoto conference in March 2006, METI gave a presentation concerning Japanese examples of RFID tag use, centering on the effectiveness and performance seen in each project, based on the interim reports for the field trials and the discussions held in the Liaison Meetings.

| Theme | Project | Applicant |
|------------------------------|---|--|
| Industry restructuring | Total traceability field trials using RFID tags in the electronic and electrical equipment industry | Japan Electronics and Information Technology Industries Association |
| | RFID tag field trials in pharmaceutical industry | Japanese Society of Hospital Pharmacists |
| | Field trials to examine the use of RFID tags in supply services for the Self-Defense Forces during international cooperative peacekeeping activities | Japan Defense Procurement Structure Improvement Foundation |
| New industry creation | Field trials in commercial streets on service robots with independent operation using RFID tags | Tmsuk Co., Ltd. NTT Communications Corporation |
| Inter-industry collaboration | Collaborative field trials focused on compound stores in preparation for practical application of RFID tags in the media content industry (publications and music/video software) | Japan Publishing Organization for Information Infrastructure Development Recording Industry Association of Japan |
| | RFID tag field trials project for achieving future-oriented store services | Future Store Sevice |
| International collaboration | ASEAN returnable container field trials project using RFID tags | Japan Auto Parts Industries Association |
| | RFID tag utilization field trials in supply chains across Japan, China and South Korea | Japan Business Machine and Information System Industries Association |

Table 1. List of Projects Taken up as FY 2005 RFID Tag Field Trials

| Date | Activity Descriptions | |
|-------------------------------|---|--|
| September 12, 2005 (Monday) | First RFID Tag Field Trials Liaison Meeting | |
| | Overview of field trials (8 field trials) | |
| | Hibiki tag specifications/provision method | |
| November 18, 2005 (Friday) | Second RFID Tag Field Trials Liaison Meeting | |
| | Report on status of field trials | |
| | Hibiki tag provision/evaluation methods | |
| | FY 2004 Field Trials Analysis TF | |
| December 22, 2005 (Thursday) | Third RFID Tag Field Trials Liaison Meeting | |
| | Report on status of field trials (license, Hibiki, excursions, international standardization efforts, etc.) | |
| | Report on activities of ECOM's International RFID Tag Utilization Promotion WG, etc. | |
| February 15, 2006 (Wednesday) | Fourth RFID Tag Field Trials Liaison Meeting | |
| | Report on status of field trials | |
| | Report on latest developments in Hibiki Project | |
| March 22, 2006 (Wednesday) | Fifth RFID Tag Field Trials Liaison Meeting | |
| | Report on status of field trials | |
| | RFID tag trends in the United States and Europe | |

Table 2. History of Activities of the "FY 2005 METI RFID Tag Field Trials Liaison Meeting"

FY 2004 RFID Tag Field Trials Meeting

Overview of Activities

To share the results of the cross-sectional analysis of the FY 2004 METI RFID tag field trials (carried out by the RFID Tag Field Trials Analysis TF of the RFID Tag/Traceability Promotion WG) and updated information on the status of the Hibiki Project with participating ECOM members, the FY 2004 RFID Tag Field Trials Meeting was held on March 27, 2006.

Activity Results

[Content of Report on Analysis of FY 2004 RFID Tag Field Trials]

- (1) Background and objectives of RFID tag system
 - Necessity for introducing RFID tags, problems with current operations, requirements, etc.
- (2) Specifications for the RFID tag system
 - Objects to which tags are attached, quantity, shape, etc.
 - Frequency band, capacity, etc.
 - Code structures considered in business sectors
- (3) Application methods for the RFID tag system
 - Methods for writing and reading data, etc.
 - RFID tag attachment, retrieval
 - Backup system (recovery method when reading is not possible)
 - Security assurance, privacy protection
 - Skill development for users (education in the use of RFID tags)

- (4) Problems experienced in introducing and applying RFID tags
 - Problems from technology perspective (problems and solutions for technological areas, such as reading accuracy)
 - Problems from an application perspective
- (5) Benefits from introducing and applying RFID tags
 - Benefits from an operational perspective, including increased operational efficiency and improved accuracy

[Matters Discussed in the Workshop]

- It is necessary to further analyze the actual differences between the introduction (field trials) and implementation. It is desired that a cross-sectional analysis be performed with regard to FY 2005 field trials as well.
- (2) With regard to the initial introduction cost, running cost, effects and other data, there were parts that could not be fully calculated with a limited period model as is the case with the field trials. It is hoped that performance the business sector participants that performed the field trials carry out studies and verification on a continual basis. As RFID tags become more prevalent, it is considered that it will be necessary to have a model case that allows companies that are considering the introduction of RFID tags to calculate or predict return on investment.

Diffusion Promotion/Social Acceptability Studies WG

Overview of Activities

Although cases of using RFID tags in supply chains across different businesses have gradually begun to appear, they still are not that large in number. Currently, RFID tags are used mainly within companies, organizations or specific areas (such as event venues, etc.). That is why Japan has not seen a movement against the use of RFID tags at stores and other consumer contact points, such as was seen for some time in the United States and Europe where RFID tag use has been more prevalent.

To spread and encourage the use of RFID tags, it is of course important to address cost reductions and the problems associated with developing RFID tag applications. However, taking into account the eventual future when use of RFID tags will be much more widespread, it is also important to set out, in advance, a course to "ensure social acceptability", with a focus on the issue of privacy.

When a business that uses RFID tags interacts with consumers, that business should take advantage of the usefulness of RFID tags while at the same time ensuring the interests of consumers and facilitating the social acceptability of the tags. To assist businesses in this regard, ECOM's "Social Acceptability SWG", a unit under the "Traceability WG", established "Consumer Protection Guidelines for Businesses Using RFID Tags" in FY 2004. These guidelines set out the requirements needed to protect customer information and ensure fair transactions when RFID tags are used.

Drawing on the above-mentioned guidelines, in FY 2005 the Diffusion Promotion/Social Acceptability Studies WG studied first several issues regarding the assurance of privacy at consumer contact points when RFID tags are used. Specifically, the WG studied (1) privacy-related threats that come with the spread of RFID tags, (2) privacy protection systems (technologies and treatment methods) that can actually be applied, and (3) the application and evaluation of protection systems in supply chains in the broad sense of the term.

At the same time, given the current lack of easy-to-understand material for general consumers concerning RFID tags in general, the WG created a (4) website titled "Easy Introduction to IC Tags" as a tool for enlightening consumers.

Activities (1) to (4) above were carried out by task forces established within the WG. In addition, in order to provide a reference for businesses that are considering the introduction of RFID tags, the WG conducted interviews of businesses that have introduced and actually use RFID tag in an attempt to ascertain the actual circumstances with regard to the key points, common problems and benefits experienced in the introduction and application of RFID tags.

Yasufumi Ishikawa, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

WG

Activity Results

(1) Use of RFID Tags and Privacy

The WG reviewed various applications of RFID tags at the consumer stage and sorted them under 10 stages, including post-sale user management, repairs, reuse, and recycling. Over the course of that process, there was a strong recognition of the fact that RFID tags not only improve the efficiency of production and supply chains for businesses, but also offer benefits to consumers and the natural environment as well.

To examine RFID tags and the privacy-related risks they present, the WG conducted an operation analysis concerning the operation of a tag system at a store, in order to analyze the operation of the system along consumer traffic routes within the store.

The following three points must be considered in advance to ensure privacy with RFID tags.

1) Information that is processed over the counter immediately

Studied the current situation of information protection and the necessary measures, sorting the private information that is processed by the RFID tag system and the locations where that information is stored.

2) Privacy-sensitive data elements

Currently the data stored on RFID tags includes unique IDs, product codes, and data about the related merchandise or product; there is no personal information stored on RFID tags. However, as the use of RFID tags expands, there will be an increasingly greater possibility that RFID tags will handle privacy-sensitive data, such as data related to an individual's birth or health, exceeding the bounds of the Personal Information Protection Act. The WG outlined an overall picture in this regard and organized and studied that issue, based on requirements for the JIS (Japanese Industrial Standards) compliance program concerning personal information (JIS Q 15001).

3) Privacy infringement situations

When an infringement of privacy in RFID tags is discussed it usually refers to situations where the data that is stored on a tag is itself read by a malicious third person without anyone's knowledge. However, when a consumer carries a product that has an RFID tag attached, it is also possible that the tag could be read and identified by R/W devices (reader/writer devices) in various locations, revealing a record of the movements of the consumer. This WG studied these two issues separately, referring to the former issue as the "content privacy problem" and the latter as "location privacy problem".

(2) RFID Tag System Use Notifications

The WG gathered and studied information concerning the following two points, from the perspective of RFID tags and ensuring privacy.

1) RFID Tag Use Notification Marks

When a product has a RFID tag attached, that fact should be clear just by looking at the product. A "notification mark" for that purpose, is currently being considered by AIM Global (Association for Automatic Identification and Mobility) and EPCglobal. The mark (or emblem) being considered by the former organization is designed to include an alphabetic character and single numerical character to identify the tag's frequency and the organization defining the data structure of the tag.

2) R/W Use Notification Mark

From a privacy assurance perspective, it is also necessary to notify consumers of the presence of R/W devices. This is also needed because of an issue that has been a concern even before the issue of privacy: there is a risk that individuals with medical devices such as pacemakers and defibrillators could be harmed by the radio waves emitted from R/W devices, which can have an adverse effect on the function of those medical devices. In this regard, JAISA (Japanese Automatic Identification Systems Association) has established guidelines, advising related parties to post stickers and tags alerting consumers to the location of R/W devices.

(3) Privacy Protection Systems for RFID Tags

The WG compared the data security functions of RFID tags with that of other data carriers and identified and evaluated privacy protection systems that can be applied currently and in the future.

1) Types of Privacy Protection Systems

The WG exhaustively identified all technologies and treatment methods for ensuring privacy with RFID tags and

sorted them under different categories: permanent data reading prevention or temporary data reading prevention and hardware-based or software-based (see Table 1).

2) Consideration of Privacy Protection Systems Applicable Currently

Based on Table 1, the WG conducted an in-depth study of individual protection technologies and systems. A qualitative study was also conducted concerning such issues as the running cost and the reuse of RFID tags after sales.

3) Next Generation Privacy Protection Systems

"Next generation privacy protection systems" refer to the systems labeled as being in the "research stage" on Table 1. These systems have attracted mass media attention because of the technical complexity and extravagance they feature. However, a number of challenges must be addressed before they can be applied in the field, and therefore a study was conducted of their advantages and disadvantages.

4) Roadmap for Privacy Protection Systems

The WG studied the feasibility of each privacy protection system listed on Table 1 and prepared a roadmap for the launch, introduction, and diffusion/development of the systems. The same roadmap also shows the timing at which the RFID tags would be applied to products, to provide a comparison with the protection systems. In this regard, please refer to the related ECOM Activity Results Report.

(4) RFID Tag Use Setting and Selection of Privacy Protection System

With regard to RFID tags and privacy protection, the most important point is that a protection system is selected appropriately, according to the setting in which the RFID tag is used. This WG studied the following two points in this regard.

| Category | | Protection System | Status | |
|---|----------------|--|--|--|
| Permanent | Hardware-based | Removal and physical destruction | Achievable | |
| data reading prevention | Software-based | Kill commandData deletion (complete or partial) | Achievable (partially limited) Achievable (partially limited) | |
| Temporary data reading prevention | Hardware-based | Radio shielding (seals, bags, etc.) Blocker tag Clipped tag R/W detection system | Achievable Research stage Research stage Concept stage | |
| | Software-based | Data encryption (complete or partial) Read lock (complete or partial) Unidentifiable Anonymous-ID scheme Hash-lock system Zero-knowledge authentication protocol | Achievable (partially limited) Research stage Research stage Research stage Research stage | |

Table 1. Privacy Protection Systems for RFID Tags

1) Evaluation of Protection System Based on Use Setting

Using each phase of a product cycle, the privacy infringement situations, cost effectiveness, product groups and other aspects as research categories, the WG studied and evaluated the advantages and disadvantages of each privacy protection system and compiled that information on a single table. Refer to the related ECOM Activity Results Report.

2) Consumer Selection Algorithm When Purchasing a Product

The option for ensuring privacy of a consumer after the purchase of a product that has a RFID tag attached lies with the consumer (in other works the consumer has the right to self-determination in this regard). Accordingly, the WG created an algorithm by which a consumer assesses the need to protect privacy and selects the protection system at the consumer contact point (store). (See Figure 1.)

(5) Creation of Website for Educating Consumers

In the creation of the website titled "Easy Introduction to IC Tags", the WG planned to provide easy-to-understand general information on RFID tags to consumers in particular. The main objective of this website is to explain (1) basic technical information about RFID tags, (2) how RFID tags are used, (3) related government policies and (4) privacy assurance.

The major topics on the sitemap for this website are as follows:

- a) What are IC tags?
- b) Why are IC tags attracting attention?
- c) How IC tags are used
- d) Issues to ensure diffusion of IC tags
- e) Privacy
- f) Government policies
- g) Q&A

h) Related links

The title of the website uses "IC tag" instead of "RFID tag" because the former term is used overwhelmingly more often in the mass media and because it seen as easier to understand for general consumers in a verbal sense, given the association with IC cards.

On the webpage title "How IC tags are used", examples of how RFID tags are used are provided with approximately 20 second animations. A total of 18 examples are given, with 6 examples for each stage of RFID tag use along SCM (supply chain management): within companies, between companies and at consumer contact points. At the beginning of each section, a simple explanation is also provided. Note, however, that all examples cover cases where RFID tags are attached to objects. It was decided to postpone the posting of examples where RFID tags are attached to human beings, as such information could mislead consumers from a perspective of ensuring privacy.

Details concerning the website are not explained in this article. There are plans to post related information on the ECOM website, once approval is obtained from the party that contracted the project, the Ministry of Economy, Trade and Industry.

(6) Survey on Actual Introduction and Application of RFID Tags

Ultimately 21 companies were interviewed. 17 companies limited use of RFID tags internally within the company and 4 companies used RFID tags across multiple companies. Although there was some duplication in the companies interviewed, the breakdown of fields where RFID tags were used, in terms of number of cases, can be summarized as follows: production/manufacturing (30%), distribution (20%), sales (11%), maintenance (11%), asset management (20%) and settlement/accounting (8%). The major topics covered in the interviews are set out below.



Figure 1. Algorithm for Consumer Assessment and Privacy Protection When Purchasing a Product

- 1) Operations to which RFID tags were applied and the benefits gain from introducing RFID tags
- 2) Problems encountered in the introduction and application of RFID tags and corresponding solutions
- 3) Strategies for improving the use of RFID tags
- Expectations and requests for promoting the use of RFID tags

For details on the results of the interviews, see the related ECOM Activity Results Report. The answers provided by companies for topic 4) above were consolidated and then sorted into the following categories. Details concerning these items can be found in the same Report.

- a) Lower cost (RFID tags and R/W devices)
- b) Improved performance (read accuracy, distance, speed, etc.)
- c) Expectations for UHF (radio wave) bandwidth
- d) Greater added value (more sophisticated functions, more user friendly)
- e) Lower cost for system development
- f) Development of code structure that becomes the standard
- g) Measures based on legal system

Future Plans

With the establishment of the "Consumer Protection Guidelines for Businesses" in FY 2004, the "consideration of applicable protection systems and use settings" in FY 2005, and the "creation of a website", the WG carried out a series of studies concerning areas that will serve as a basis for the use of RFID tags and privacy assurance, and we believe that a certain degree of positive results were achieved.

In FY 2006, the WG would like to draw on these results and carry out activities toward promoting a correct understanding of RFID tags and privacy among consumers and businesses, with a focus in particular on spreading awareness and enlightenment.

Specifically, the plan is to carry out activities focusing mainly on the following four points.

- Consider ways to educate consumers: catch-up measures advantageous to consumers, enlightenment programs, publication media, etc.
- Consider measures for businesses at stores (consumer contact points): Notification methods, response to problems, preliminary preparations upstream in SCM, etc.
- Consider handling in final sections of a product life cycle: 3R (means recycle, reuse and reduce) tags, etc.
- Consider revisions to website: data updates, improvements to user-friendliness prior to posting the website prepared in FY 2005 on the ECOM website, etc.

Table 2. History of Activities of the "Diffusion Promotion/Social Acceptability Studies WG"

| Date | Activity Description | | |
|--|--|--|--|
| August 5, 2005 (Friday) | First meeting of Diffusion Promotion/Social Acceptability Studies WG | | |
| September 1, 2005 (Thursday) | Discussed privacy protection technologies and know-how_TF1-1 | | |
| September 7, 2005 (Wednesday) | Discussed website to enlighten consumers_TF3-1 | | |
| September 8, 2005 (Thursday) | Discussed platform for enlightening consumers_TF2-1 | | |
| September 22, 2005 (Thursday) | Discussed website to enlighten consumers_TF3-2 | | |
| September 29, 2005 (Thursday) | Discussed privacy protection technologies and know-how_TF1-2, Discussed platform for enlightening consumers_TF2-2 | | |
| October 14, 2005 (Friday) | Discussed website to enlighten consumers_TF3-3 | | |
| October 18, 2005 (Tuesday) | Discussed privacy protection technologies and know-how_TF1-3 | | |
| October 19, 2005 (Wednesday) | Discussed platform for enlightening consumers_TF2-3 | | |
| October 28, 2005 (Friday) | Second meeting of Diffusion Promotion/Social Acceptability Studies WG | | |
| November 9, 2005 (Wednesday) | Discussed website to enlighten consumers_TF3-4 | | |
| November 10, 2005 (Thursday) | Discussed privacy protection technologies and know-how_TF1-4 | | |
| November 15, 2005 (Tuesday) | Discussed platform for enlightening consumers_TF2-4 | | |
| December 9, 2005 (Friday) | Discussed privacy protection technologies and know-how_TF1-5 & Discussed platform for enlightening consumers_TF2-5 | | |
| December 13, 2005 (Tuesday) | Discussed website to enlighten consumers_TF3-5 | | |
| December 16, 2005 (Friday) | Third meeting of Diffusion Promotion/Social Acceptability Studies WG | | |
| January 18, 2006 (Wednesday) | Discussed platform for enlightening consumers_TF3-6 (Review meeting before limited release of beta version of website) | | |
| January 23, 2006 (Monday) | Fourth meeting of Diffusion Promotion/Social Acceptability Studies WG | | |
| February 2 (Thursday) to February 17, 2006 (Friday) | Limited release of beta version of website and gathering opinions and comments | | |
| February 27, 2006 (Monday) | Fifth meeting of Diffusion Promotion/Social Acceptability Studies WG | | |

Note: TFx-n: x (group no.), n (number representing position in the series of meetings (first, second, etc.))



Overview of Activities

On the assumption that products and merchandise will move across national borders as economies become increasingly globalized, the International RFID Tag Utilization Promotion WG carries out activities with the purpose of (1) ensuring that data can be read from and written to RFID tags attached to those products and goods, through standards that are uniform internationally and (2) ensuring that the various parties involved, including companies and administrative organizations in different countries and regions, can use information stored on RFID tags in a smooth and effective manner.

With regard to hardware-based standards related to RFID tags and reader/writer devices, outstanding progress has been made in international standardization efforts, as represented by ISO/IEC 18000-6 Type C. However, the required specifications for use of user memory on RFID tags differ according to industry and product. Moreover, there are still unclear problems related to the data format, including how compatibility with other high-capacity AIDC media and the particularities of RFID tags will be harmonized. This has lead to concerns about the possibility that industries will indiscriminately create their own methods.

Therefore, this WG, as shown in Figure 1, carried out the following activities regarding the semantics and syntax of data

elements that are written to the user memory section of RFID tags, with its ultimately goal being the establishment of a uniform dictionary (directory) that incorporates the needs of business sectors and is compatible with EDI.

- (1) Ascertain the current circumstances concerning standards for data elements that can be written onto RFID tags
- (2) Compare and study current standards and data elements that were used in the FY 2004 METI field trials.
- (3) Compare and study the data elements written onto AIDC media and the data elements defined in EDI standards (UN/EDIFACT and ebXML)
- (4) Compare and study the data elements written onto AIDC media and the needs of business sectors regarding the data written onto RDIF tags that were identified in the FY 2005 surveys

As a result of these activities, the WG identified data elements written onto AIDC media, and requirements for additions and changes to the data elements defined in EDI standards. The WG plans to make appropriate proposals in this regard, with the cooperation of international standardization organizations.



Figure 1. ISO/IEC 18000-6 Type C Memory Map

Activity Results

Based on ANSI MH10.8.2, a standard defining the semantics and syntax for data elements written onto RFID tags, the WG identified the corresponding relation with business sector requirements from the field trials and industry surveys, and conducted a study of the corresponding relations with the EDI data elements.

(1) Study of Existing Standards

The directories for data elements written on high-capacity AIDC media, including RFID tags, are prescribed in ANSI MH10.8.2. ISO also refers to this standard. Before beginning the above-mentioned activities (1) through (4), the WG reviewed the content of this standard. In this standard, the data identifiers (DI) managed by ANSI and the application identifiers (AI) managed by the GS1 are mapped to each other. The study revealed that DI are made up mainly of data elements that are used in the manufacturing industry and AI are made up of data elements that are required in the supply chain from the final product manufacturer to the retailer. Although there are data elements in both AI and DI, a majority of the data elements are defined for only one identifier type, showing that they have a complementary relationship.

Also, in the course of WG discussions, the need to include Japanese-based notations in the data written onto RFID tags became clear. Accordingly, a study was conducted on how available character types could be defined for ISO/IEC15434, ISO/IEC15961 and ISO/IEC15962, international standards related to data expression format. The WG's conclusion was that ISO/IEC15434 would permit only ISO646 (so-called 7-bit ASCII characters) and the extension of the characters would be left to the involved syntax (for example, UN/EDIFACT). Furthermore, with regard to signals between RFID tags and reader/writer devices, it became clear that ISO/IEC15961 and ISO/IEC15962 permit the ISO10646 character set and define that UTF-8, which is also used as a character encoding method in the Internet, should be used. The WG's conclusion was that it is, from a technological perspective, possible to store multi-lingual data, including Japanese, on RFID tags. However, the concept of multilingual data differs between standards, as there are standards that define the character set and encoding and those that don't. With regard to ISO/IEC15434, the WG concluded that the opportunity should be taken to recommend that a request be made to add an explicit corresponding description.

(2) Results of Field Trials and Compatibility with Al and DI

When the report on FY 2004 field trials was reviewed, it became clear that in all experiment groups, the data written on to RFID tags in the experiments included data other than unique identifiers of the product. This fact backs up the strong need for the use of user memory. The WG analyzed the corresponding relationship between AI, DI and the data elements used in the field trials. As a result, it was verified that all data elements used by every group in the FY 2004 field trials could be mapped to the existing AI or DI. However, with regard to DI, the data elements were defined at the syntax level, and for semantics, many data elements adopted a method where meaning was attached with a modifier of the data elements defined in ANSI X12, a United States EDI standard. Therefore, there were cases where there were multiple data elements corresponding to a single DI and, therefore, there is a need to refer to an ANSI X12 code table whenever using the data elements.

(3) EDI Standards and Compatibility with AI, DI

EDI is a tool that plays an important role in the use of RFID tags in actual operations. It acts as means of sharing information that cannot be kept on RFID tags between businesses. It also provides information that proves the authenticity of the information written on an RFID tag, or information that is delivered to the destination ahead of the information on a RFID tag, which is shipped and arrives at the destination at the same time as the product. This WG prepared a table mapping AI and DI to the core components for both conventional UN/EDIFACT and the next generation of EDI, ebXML. With regard to UN/EDIFACT in particular, the studies focused on DESADV, which is used as an ASN (advanced shipping notice) message, a message that forward-looking business users want to use together with RFID tags. That study revealed that there are many data elements that are defined in AI and DI but not in EDI. Because EDI focuses on commercial transactions using identification of product code labels and does not support management on an individual product basis, a decision was made to request the addition of data elements compatible with RFID tags to EDI directories. Furthermore, because the core components of ebXML were not completed at the stage when the related activities were carried out, only the core components that had been released provisionally were covered. This made it difficult to clearly identify excesses and deficiencies in data elements. However, it is considered necessary to recommend that the concept of individual item identification is incorporated in the currently developed core components related to product and shipping units.

(4) Data elements Identified in the Business Sector Surveys and Compatibility with AI and DI

In FY 2005, the RFID Tag/Traceability Promotion WG conducted a survey focusing on information sharing between businesses in business fields belonging to the final sections of a product life cycle, such as recycling and maintenance. The survey was conducted as a survey of information sharing between businesses and targeted the electronic equipment industry and the office equipment industry. This survey resulted in the identification of items for which RFID tags can be used to share information. This WG carried out activities to verify compatibility of those items with AI and DI. Although those activities have not been completed as of the date on which this document was prepared, a new need in data elements mainly related to maintenance, which does not have a match with the DI, has been identified. There is a strong reflection of needs related to the repair of aircraft in the current DI, with many special data elements. In contrast, in the electronics industry and the office equipment industry, it is considered necessary to add universal data elements for consumer durables which require maintenance activities.

Summary

As explained above, as a result of the studies conducted regarding data elements stored on RFID tags, the WG was able to reach the conclusion that it is preferred that data elements are set for each business sector, based on AI and DI, given the strong possibility that existing AI and DI will be applied in the field of supply chain management (SCM) (front section of a product life cycle), when using RFID tags to share information between business in a product life cycle.

On the other hand, in the final sections of a product life cycle, there are insufficiencies in the data elements defined by the current AI and DI and requests for additions should be made.

EDI data elements do not include all current AI and DI. However, assuming a use case where EDI is used to supplement restrictions in the memory capacity of RFID tags used, it is preferred that AI and DI items be included as EDI data. Therefore, a conclusion could be reached that requests should be made for additional data elements, in accordance with the diffusion of RFID tags.

| Date | Activity Description | | |
|------------------------------|---|--|--|
| September 13, 2005 (Tuesday) | First meeting of the International RFID Tag Utilization Promotion WG | | |
| October 7, 2005 (Friday) | Second meeting of the International RFID Tag Utilization Promotion WG | | |
| December 16, 2005 (Friday) | Third meeting of the International RFID Tag Utilization Promotion WG | | |
| February 9, 2006 (Tuesday) | Fourth meeting of the International RFID Tag Utilization Promotion WG | | |
| March 20, 2006 (Monday) | Fifth meeting of the International RFID Tag Utilization Promotion WG | | |

Table 1. History of Activities of the "International RFID Tag Utilization Promotion WG"

Term Definitions

AI (Application Identifier):

Application identifier managed by the GS1 (former name: International EAN (European Article Number) Association)

Part of the product code structure (application identifier)

DI (Data Identifier):

Data identifier that is managed by ANSI (American National Standard Institute) and is made up of mainly data elements used in the manufacturing industry and other areas

AIDC Media (Automatic Identification and Data Capture):

High-capacity AIDC media (Automatic Identification and Data Capture) is a media that collects data for which the standard is defined by ANSI MH10.8.2. Business sectors in many countries, including Japan, are not very aware of this media and are therefore defining there own data elements.

ASN (Advanced Shipping Notice):

The advanced shipping notice contains information that the shipper communicates prior to the arrival of goods, such as shipping date and shipping quantity. The recipient sends a "receipt notice" to the shipper after inspecting the delivered goods based on the "ASN" information.

DESADV (Despatch Advice):

Name of a UN/EDIFACT message that is used as information in the advanced shipping notice. Packing list data elements

ISO/IEC18000-6:

International standard for specifications related to communications between RFID tags and reader/writer devices

Part 6 is the communication specifications for UHF bandwidth (860 M to 960 MHz)

This is also called the air interface.

ISO/IEC15434:

International standard for the syntax of large-capacity ADC (Automatic Data Capture)

ISO/IEC15961: Radio frequency identification (RFID) for item management: Data protocol

International standard for command structure between reader/writer device and host

ISO/IEC15962: Data protocol: Data encoding rules and logical memory functions

Data format between RFID tags and reader/writer devices. International standard related to the data processing method



Overview of Activities

In the International Traceability Research WG, I have conducted two projects. One is a study into the adaptability of RFID tags in ASEAN ten countries and the other is a survey of RFID usage trends in the US and Europe at the OECD-ICCP RFID Foresight Forum.

As part of METI's project to improve the infrastructure of Asian industries, a study into the possibility of using RFID tags in ASEAN member countries was started in FY 2004. In FY 2004, seven ASEAN member countries (out of ten countries) were surveyed. In FY 2005, the remaining three countries were surveyed and two countries were visited in order to conduct a further survey on important matters discovered in the FY 2004 survey.

On behalf of METI, I participated in the OECD-ICCP RFID Foresight Forum at OECD in Paris, and I presented the case studies of RFID applications in supply chain in Japan. I also conducted a survey of RFID usage trends in the US and Europe at the OECD-ICCP RFID Foresight Forum.

Activity Results

(1) Survey of Adaptability of RFID Tags in ASEAN Countries

In order for ASEAN countries to promote economic integration and increase competitiveness as a single market, it is necessary to further improve the speed and efficiency of trade-related procedures, including customs procedures.

There has been an increasing use of computerized trade systems using RFID tags in recent years. It is hoped that introducing such systems as a common system between Japan and ASEAN will provide solutions to further improving the speed, efficiency and harmony of bilateral trade related procedures. It is also hoped that it will provide solutions for the wide variety of problems that have attracted attention in recent years as major trade topics, including the prevention of corruption related to trade procedures and the elimination of violations of intellectual property rights.

Survey Objectives

The objectives of the survey were to improve understanding regarding RFID tags among Japan and ASEAN countries, from both technological and operational perspectives; to carefully study the current status of efforts to computerize trade-related procedures in ASEAN countries, related problems and the possible use of RFID tags; and to contribute to future activities Masakazu Fujita, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

Joint Research

to establish a computerized trade system between Japan and ASEAN countries using RFID tags.

Countries Surveyed

Of the ten ASEAN countries, seven countries (Singapore, Malaysia, Indonesia, Vietnam, Myanmar, Thailand and Cambodia) were surveyed in FY 2004. Three countries (Laos, Philippines, and Brunei) were surveyed in FY 2005 (Survey A). After this, an additional survey (Survey B) was conducted in the Philippines and Singapore.

Results of the Survey/Research

- 1) Survey of Trade Systems in ASEAN Countries
 - The actual status of introducing trade systems in ASEAN countries differs significantly in each country from several perspectives, including the infrastructure established (such as the information technology, telecommunications and legal systems), human resources and economic status. For that reason, a survey was conducted to collect information on several aspects of each country, including the customs system, ports, distribution systems, radio wave related legislation, standardization of product codes, use of RFID, and status of the established infrastructure. The collected information was then summarized in the report.
- 2) Consideration of Problems Associated with the Introduction of Trade EDI and RFID

In order to facilitate trade between Japan and ASEAN countries, it is considered essential that EDI is introduced for trade between Japan and ASEAN countries so as to improve the efficiency of related procedures. However, there are a wide variety of problems inherent in each country, hindering the actual introduction of trade EDI and RFID. These problems were identified, pointed out and compiled in the report.

3) Activities to Increase Awareness About RFID Technology and its Use

In order also to accelerate future activities to establish a computerized trade system for Japan-ASEAN trade, it is important to increase understanding of RFID and share information between Japan and ASEAN countries. Seminars were held in order to increase and spread awareness regarding RFID-related technology, application methods and effects.

For more details, refer to "Research Report: Survey Contracted by METI - Project to Improve the Foundation of Asian

Industries - Survey 2 of Adaptability of IC Tags (RFID) Among ASEAN Countries" (published in March 2006 by ECOM).

(2) US/Europe RFID Tag Trend Survey

At the OECD-ICCP RFID Foresight Forum in Paris, I reported the status of Japanese activities related to RFID tags and improved the presence of Japanese RFID tag related efforts. At the forum, ECOM exchanged information and ideas with OECD-ICCP member country representatives, government officials, university officials, companies, non-profit organizations and others, on a range of topics, including the application and potential economic benefits of RFID tags, ways they will be used in the future, the uneven distribution of RFID and the potential economic and social benefits they offer. The report was submitted to METI.

For more details, refer to the OECD website. URL:

http://www.oecd.org/document/58/0,2340,en_2649_34223_3 5186234_1_1_1_0.0.html

Future Expectations (Summary)

It was possible to complete the awareness improvement activities based on the survey of 10 ASEAN countries and the seminars without incident. In the future, the appropriate approach is to take the following steps in order to revitalize trade transactions between companies in Japan and the ASEAN region by facilitating trade-related operations, the objective of this survey.

- (1) Make efforts to simplify and standardize trade-related laws, procedures and documents
- (2) Consider and establish a distribution system that can be employed safely and smoothly
- (3) Establish and utilize an information and telecommunications infrastructure to support that system.

ASEAN countries (six developed countries) have already launched a project in an aim to start the implementation of the 2008 ASEAN Single Window (ASW). It is therefore extremely important that Japanese efforts related to the shift to the single window are also closely coordinated at each step with ASEAN countries to ensure efficiency and harmony with the ASW project. In the future, the application of RFID will be taken up as a common study issue for both Japan and ASEAN countries. The application of RFID is an area where the knowledge, experience and technology of Japan will be anticipated during coordination with ASW efforts in the future (see Figure 1). Accordingly, it would be helpful for both Japan and ASEAN nations if cooperation and collaboration in this field are considered.



Figure 1. ASEAN Single Window (ASW) Initiative

ADR Pilot Project (the Internet Shopping Dispute Consultation)

Toshiko Sawada, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

Pilot Project

Introduction

The Internet Shopping Dispute Consultation Office was established in 2001 as part of activities of the Consumer Protection WG of ECOM and had been managed since 2003 as an activity sponsored by the Ministry of Economy, Trade and Industry. It is to be closed down at the end of March, 2006, because of the termination of the field trials. In this report, by reviewing activities for the past four years, I would like to describe the role that private ADR (alternative dispute resolution) has played in the electronic commerce market and the policies and measures that should be implemented after the termination of the field trials.

Activity Background and Purposes of the Field Trials

What are the policies and measures necessary to ensure the protection of consumers in electronic commerce? To examine this question, it is necessary to know actual problems that have occurred in relation to Internet shopping and online auctions. Therefore, the Internet Shopping Dispute Consultation Office started its activities with the most important aim of gathering and analyzing problem cases.

In the "OECD Guidelines for Consumer Protection in the Context of Electronic Commerce", which was adopted in 1999, the "importance of ADR as a dispute resolution method to protect consumers in cross-border business transactions" was recognized. At that time, ADR systems were being developed in each country in response to the guidelines. The Consumer Protection WG of ECOM implemented dynamic activities in anticipation of these international developments, proposing Japan's own version of the "Guidelines for Consumer Protection in the Context of Electronic Commerce" and taking other similar actions. The basis for the Consultation Office was first placed in the Consumer Protection WG, to make use of the knowledge of that WG, which had been accumulated through surveys concerning overseas trust-mark and ADR systems.

Traditional consumer consultation systems cannot fully respond to disputes in electronic commerce. To respond to such niche needs, the Internet Shopping Dispute Consultation Office started "consultation and mediation by e-mail" as a function suitable for the current status of online problems, and also provided consultation services for "problems in consumer-to-consumer and international transactions" and for "inquiries from businesses".

In addition, instead of only accepting inquiries and giving advice, the Consultation Office also resolved problems (ADR) as a third-party intermediary in a neutral position and examined the effects. This activity was recognized as one of the purposes of the field trials. The aim was to examine the ideal ADR system suitable for the reality in Japan in accordance with international standards and based on international cooperation.

Activity Results

(1) Actual Consultation Results

The Internet Shopping Dispute Consultation Office received 4,985 inquiries over an approximately four-year period, from 2002, when the office started full-fledged activities after a preparatory period, to the end of February 2006. (See Figure 1). Among the variety of problems encountered, "characteristic cases" occurred from year to year, such as improper mail-order price displays in 2003 and fictitious billing for pornography sites in and after fall 2004. Problems related to international transactions accounted for approximately 10% of the total cases.

The number of inquiries gradually increased, supposedly and partly due to the increased name recognition of the Consultation Office. Although it is rumored that "problems have been increasing at an explosive pace due to the expansion of Internet shopping and the Internet auction market", that is not necessarily correct. While increasingly-sophisticated fraudulent cases and new types of problems due to an expanded user base are found here and there, it is believed that problems have not surfaced because both businesses and consumers have accumulated an adequate level of knowledge and experience and because market prices have been established: in other words, the market has become mature in a sense.

For more information on the types of problems encountered, a breakdown by product and by amount, and other detailed information, you can refer to data that is released on the website of the Internet Shopping Dispute Consultation Office. (You will be able to access information on the website of ECOM (http://www.ecom.jp/) even after the Consultation Office closes.)

(2) Role of Private ADR

1) Specialized consultation counter

During the field trials, the Internet Shopping Dispute Consultation Office regularly requested users to complete questionnaire surveys. In consideration of both the survey results and comments from consumer life centers and other similar institutions, it is safe to say that there still is a strong need for a "specialized consultation center for individual problems".



Figure 1. Change in the Number of New Consultation Cases

At present, the Internet is no longer a special means of conducting business transactions; consumer affairs centers receive inquiries related to online transactions on a daily basis. However, expertise is still required in some Internet-specific cases, such as the online purchase of programs, issues concerning domain names, and issues that are treated to topics on Web bulletin boards.

Consumer consultation services are not provided for problems in consumer-to-consumer transactions, but "businesses who provide opportunities" for auctions and other similar business transactions may provide a related solution function in the future. However, as for international transactions, there is no other organization that can provide consultation services and a solution function to domestic consumers who are involved in problems caused international bv transactions. Private-sector-driven efforts cannot be expected because private businesses in Japan do not find any business merit in focusing their managerial resources on this area. It is necessary to implement relevant policies in this area after the termination of the field trials.

2) Establishment and diffusion of market rules

In my opinion, the role of private ADR is not only to provide consultation services for individual problems but also to "increase the spread of desirable business practices and rules based on accumulated cases". This role was not necessarily clearly recognized when the experiment was started, but we have seen the importance of this role over the course of the experiment.

For example, so-called "improper price display" cases frequently occurred in and after fall 2003: businesses who mistakenly indicated on mail-order sites prices that were one digit smaller than the actual prices were deluged with orders and were flooded with simultaneous complaints from customers who placed orders and who were dissatisfied with the order cancellation carried out later by the stores. On that occasion, based on the advice of law experts, the Consultation Office publicly announced the "View of the Consultation Office", which was derived from many cases. The view provides reference points for the "moment of agreement conclusion", which cannot be clearly judged based only on the words of the Civil Code and the Electronic Consumer Contracts Law. The view also presented cases in which businesses can allege mistake and nullity. Needless to say, this is just "one view" and does not have any legally binding power. However, after the "view" was presented on a variety of websites, bulletin boards, and other locations, there was no longer a flood of inquiries, even in similar cases. I think this a good example of how acceptable rules can be established in the market through ADR.

In the Internet community, new types of services that cannot be predicted within the bounds of existing laws are appearing one after another, sometimes leading to problems due to an unclear legal interpretation. However, we cannot expect much that a legal interpretation of such individual problems will be established based on precedents. It takes too much time for legal procedures to catch up with practical business affairs. In my opinion, what is required to increase predictability for both businesses and consumers and to decrease legal risks as much as possible is organic cooperation in which consultation organizations swiftly capture information on possible problems and administrative organs quickly respond to them.

As a trial to achieve this goal, the Consultation Office fed back the results of the ADR pilot project to the "Interpretative Guidelines on Electronic Commerce" formulated by the Ministry of Economy, Trade and Industry. Specifically, experts legally analyzed inquiries that were sent to the Consultation Office on all kinds of issues such as the above-mentioned improper price displays, responsibility of parties involved in auctions and problems seen in international transactions. The experts submitted drafts of the Guidelines to the Ministry of Economy, Trade and Industry, several times. In February, 2006, the Ministry of Economy, Trade and Industry publicly announced the fourth revised version of the Guidelines based on the drafts. In 2005, toward the next revision, the Consultation Office presented many points of controversy derived again from ADR cases.

For the purpose of facilitating business transactions, it is necessary not only to develop laws but also to share norms and common sense. In Internet transactions, especially consumer-to-consumer transactions, it cannot be said that norms and common sense are fully shared among the players in the market, and a lot of problems are caused by discrepancies in perceptions and understanding. From the experiment, we have reached the conclusion that one of the roles of ADR is to establish and disseminate "desirable rules and common sense" through each dispute resolution.

3) Prevention of Problems

In addition to these activities, the Consultation Office also provided information concerning new fraudulent schemes and other similar issues on the website to draw consumers' attention to them. Based on past inquiry cases, the office also posted reminders for both businesses and consumers on how to avoid problems, on the website's blog and by means of other media. From the access record of the website, we know that there is quite a strong need for such information. In questionnaire surveys, many respondents requested that better quality information be provided.

Utilization of the Results of the Field Trials

After the termination of the field trials, the functions that were confirmed as important by the trials should be maintained under the leadership of the private sector. ECnetwork, a limited intermediary corporation, is to be established in April, 2006, as a new membership-based organization, to take over the results of the activities of ECOM and to implement actions toward a "secure electronic commerce market". (See Figure 2.)

Easy market entry is one of the great advantages of the e-marketplace. Small and medium sized companies and individual entrepreneurs have successfully expanded business opportunities by opening online shops and by participating in online auctions. I think that their efforts have contributed to the expansion of the electronic commerce market by stimulating the market and broadening the base of market players. On the other hand, huge risks and incidents between sellers and consumers are sometimes seen as a result of careless sales mistakes by those who have neither adequate knowledge nor awareness as an entrepreneur.

The main activity of the new intermediary corporation is to provide legal information and a dispute resolution function for small and medium sized companies that are entering the market as newcomers. Through this activity, the new organization aims to contribute to the sound development and stabilization of the market and the protection of consumers.

However, administrative backup is needed on a continual basis to keep the activities on track and to effectively meet all the market needs that were confirmed through the field trials. In my opinion, it is also essential that major companies are asked to participate in the new organization, at least in the beginning, and to support it as an engine toward achieving a secure market. I would like to ask ECOM member companies to pay continuous attention to the activities of the new limited intermediary corporation and to actively support and join it.



Creation of EC market in which people can participate with a sense of security

Figure 2. Secure Electronic Commerce Market





<Reference 2> Website of ECnetwork that will start to receive inquiries in April 2006



Website of ECnetwork: http://www.ecnetwork.jp/

Personal Information Protection WG

Overview of Activities

In April, 2005, the "Act on the Protection of Personal Information" (hereinafter referred to as the "Protection Act") came into full effect for the private sector. Before the related bill was passed, we continued to watch the examination process of the Protection Act as well as preparations for its enactment, and after the Protection Act went into effect, we conducted a survey on responses of businesses handling personal information to the Protection Act (by conducting a visual survey of websites). We also revised the ECOM Guidelines for Personal Information Protection, based on the variety of information leak incidents that actually occurred after the enforcement. The main points are summarized below. The history of our WG activities is presented in Table 1.

Activity Results

(1) Outline of a Visual Survey on Websites

In April and May, 2005, soon after the Protection Act was put into effect, we conducted a survey on responses to the Protection Act by visually checking descriptions on the websites of 132 corporate ECOM members (excluding group

Table 1. History of Activities of the "Personal Information Protection WG"

| Onternet | Meeting | Date | | |
|----------|--|--|--|--|
| Category | Activity Description | | | |
| WG | First | July 20, 2005 | | |
| | Responses of member com | npanies to the Protection Act | | |
| WG | Second | August 29 | | |
| | Problems after the enforcer businesses are required to | ment of the Protection Act and actions that take | | |
| WG | Third | September 26 | | |
| | Examination of the revision Information Protection | of the ECOM Guidelines for Personal | | |
| Seminar | Fourth | November 7 | | |
| | s in measures and policies after the n the Protection of Personal Information ctric Industrial Co., Ltd., to protect anies take and corresponding solutions | | | |
| WG | Fourth | November 10 | | |
| | Examination of the revision of the ECOM Guidelines for Personal Information Protection (Continued from the previous meeting) | | | |
| WG | Fifth | December 19 | | |
| | Overseas trends in the protection of personal information | | | |
| WG | Sixth | January 31, 2006 | | |
| | Review of the first year of the enforcement of the Protection Act and future problems | | | |
| WG | Seventh | February 28 | | |
| | Review of the first year of the enforcement of the Protection Act and future problems (Continued from the previous meeting) | | | |

Masahiro Eguchi, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

WG

members and special members) and 237 companies with the online trust marks of the Japan Direct Marketing Association, which were chosen out of online stores nationwide.

In the survey, we considered:

- Whether policies for the protection of personal information are described or not
- Contents of the policies for the protection of personal information
- Description in relation to procedures for disclosure requests (request method, with or without fees, reply deadline, etc.)
- Whether any description in relation to the use of cookies is included or not, and the purpose of such use
- Whether a privacy mark has been acquired or not
- Others

Some results of the survey are presented below.

I would like to add that the largest difference between corporate ECOM members and companies with online trust marks is the corporate size.

(a) Percentage of companies that have described policies for the protection of personal information on their websites



<Survey results>

93% of corporate ECOM members and 62% of companies with online trust marks have described in some way policies for the protection of personal information (privacy policies) on their websites. The percentage of surveyed companies with a privacy policy description has drastically increased in one year. In describing policies for the protection of personal information, it is important to sincerely bring consumers' attention to corporate efforts and it is strongly recommended that related links are displayed in easy-to-see sections of websites. (b) Description in relation to procedures for disclosing personal information



<Survey results>

One of the main points concerning the enactment of the Protection Act is that the right to request businesses to disclose information is included. The percentage of companies providing a description of the specific procedures in that regard is significantly different when we compare corporate ECOM members and companies with online trust marks (43% vs 17% respectively). Businesses are required to respond to information disclosure requests. They need to further strengthen the trust and confidence of consumers. Therefore, they are required to respond to such requests in a way that enables everyone to easily learn specific procedures.

(2) Leaks of Personal Information after the Full Enforcement of the Protection Act and Revision of the ECOM Guidelines for Personal Information Protection

Since the Protection Act was put into full effect, there have been a series of incidents involving leaks of personal information. According to the Quality-of-Life Policy Bureau of the Cabinet Office, there were nearly 900 cases reported to supervisory ministries in the first half of 2005. The leaks were caused by a wide range of factors, but typical ones are presented below. For details, please refer to the related Activity Report of ECOM.

<Intentional information leaks by parties involved>

- The price comparison site with the largest number of users was tampered with through unlawful access and the personal data of members who accessed the site was leaked to outside parties.
- An ex-employee of a company with a store on an Internet shopping mall obtained personal data stored in the mall server and sold it to businesses that handle lists of names.
- By making use of spyware, an unidentified person posing as an Internet shopping customer obtained ID and other similar information from an Internet shop owner and unlawfully withdrew a deposit.
- A server for an Internet shop of a major apparel company was unlawfully accessed by an unidentified person and data on thousands of customers including credit card information was leaked.
- Other similar cases

<Information leaks by parties involved due to their negligence and carelessness>

- Secret data including personal information that employees took home was leaked on the Internet through file-swapping software.
- Sales representatives took personal computers containing personal data with them when they went out on business, and lost the PCs in transit.

- It was discovered that microfilms on which customer transaction data was recorded had been lost, when possessed personal information was simultaneously checked.
- Other similar cases

We examined specific safety management standards that would be effective for the prevention of such information leaks and added them to the ECOM Guidelines for Personal Information Protection. The main points of the revision are listed below.

- (a) Countermeasures against physical theft and losses
 - Prohibition of the storage of personal databases in client terminals (excluding personal data for communication, such as e-mail addresses and telephone numbers)
 - 2) Restrictions on outside use and thorough inventory control
 - 3) Start-up locks when leaving the office and traveling, data file encryption and storage in lockable lockers
- (b) Countermeasures against unlawful access and viruses
 - Businesses should monitor for unlawful access and the entry of viruses at all times, and when they detect any malfunction, they should immediately shut down the system and confirm system security.
 - 2) When businesses limit access, they must collect detailed operation logs without fail to use them in investigating the causes of incidents.
 - 3) Businesses should prohibit network connections from personal computers for private use and personal computers that have not been inspected (if not approved by persons who are responsible for the protection of personal information).
 - 4) Businesses should not transmit unencrypted files containing personal information over the Internet.
- (c) Strengthening of personnel security management
 - In providing education and training to employees, businesses should clearly present concepts and rules in relation to the protection of personal information and confirm the level of observance on an as-needed basis.
 - 2) Businesses should coordinate personnel security management with personnel systems and working regulations, and apply penalties in the event of intentional unacceptable behavior, serious faults or violations.
- (Note) You can find more information on the "Revised Version (Ver. 4.0) of the ECOM Guidelines for Personal Information Protection" on ECOM's website at the following address.

http://www.ecom.jp/report/guideline.html

Summary

While there still are frequent incidents of personal information leaks, there are excessive restrictions placed on the utilization of personal information: use of fax machines has been suspended for fear of misdelivery, and customer services at call centers have deteriorated due to self-restraint in recording the content of inquiries (there was no restraint in the past). For the purpose of ensuring the establishment of the intent of the Protection Act in society, it is important to build a social consensus as well as establish, on a timely basis, reality-based legal interpretations of the variety problems that are occurring in actual business operations. Administrative organizations, private companies and intellectuals from various fields are required to take actions in an integrated manner.



Overview of Activities

With the aim of creating a society in which all the people can make use of information and communication technologies and enjoy the maximum benefit of them, the Japanese government started to implement the "e-Japan Strategy" in January, 2001, toward the realization of the world's most advanced IT nation within five years. This year is the fifth year.

Since the Law concerning e-Signatures was enforced in April, 2001, digital signatures based on public key (cryptogram) infrastructures (PKI) have had a legal meaning. Digital signatures are now politically, institutionally and technologically available and an environment for utilization has been already developed.

People have started to make use of digital signatures in government-to-business (G2B) transactions in line with the development of e-government services, and also in business-to-business (B2B) transactions in some industries, but the development speed is slow. In addition, digital signatures have been rarely used in business-to-consumer (B2C) and consumer-to-consumer (C2C) transactions, although a lot of problems have already occurred due to undelivered purchases and other similar reasons.

Therefore, our group examined measures to expand the utilization of digital signatures. Because this year was the first year of our activities, we narrowed the examination down to the utilization of digital signatures in the private sector, and clarified areas in which digital signatures should be used and items to be examined for this purpose.

Activity Results

In the beginning, we ascertained the reality of utilization of digital signatures in Japan. Next, we analyzed items that were listed as reasons for impeding expanded utilization of digital signatures. At the same time, we sorted out actual online problems that could be resolved by digital signatures. Based on this work, we clarified items on which we should focus in particular.

(1) Current Diffusion Status of Digital Signatures

We reconfirmed areas in which digital signatures should be used according to opinions that experts had from 2000 through 2004, during which public key (cryptogram) infrastructures were being constructed, and conducted a survey on current typical cases of utilization of digital signatures in Japan.

(2) Problems with Diffusion of Digital Signatures

We picked up problems that were supposedly impeding the diffusion of digital signatures from reports with opinions of experts and other similar documents, added the opinions of WG members, and classified the problems as follows: demand, applicable areas, laws and policies, standardization and interoperability, safety and reliability, level of easiness in introduction, operability and manageability, and maintainability. Next, based on the understanding of the essence of opinions on each classified problem, we analyzed measures according to problems, such as problems to be resolved in line with the diffusion of PKI including introduction cost and undeveloped utilization environment and problems needing the development of laws and regulations, and extracted issues to be examined. Results of this analysis are presented in the Figure 1 on the next page.

(3) Analysis of Network Problems

From the perspective of ensuring security, we analyzed EC problem cases in 2003 and 2004, which were summarized by the ADR (alternative dispute resolution) WG of ECOM, and sorted out areas and cases in which people could avoid problems by making use of digital signatures.

1) B2C transactions (Internet mail-order, etc.)

The credibility of businesses is a very important point in B2C transactions. Therefore, in evaluating sellers, individual purchasers need to pay attention to how the credibility of the online shops can be verified. Effective tools for first-time transactions are online trust marks, credibility of mall businesses, commercial registration, electronic certificates of qualified certificate authorities, etc. Useful tools in repeated transactions are identity confirmation, addresses to which e-mailing has been already confirmed, bank accounts, etc.

2) B2C transactions (online shops by individual entrepreneurs, etc.)

For the purpose of making online trust marks and ADR (alternative dispute resolution), which are now in use, low-cost systems that individual exhibitors can easily use, it is effective to confirm identification of individual entrepreneurs by means of public personal authentication certificates.

3) C2C transactions (online auctions, etc.)

In C2C transactions in which individuals participate, it is important to identify the individual sellers and purchasers. Effective tools in a first-time transaction are electronic certificates that are issued by qualified certificate authorities and public personal authentication certificates. I think that public personal authentication will be the most effective tool because, from the viewpoint of cost, individuals have few opportunities to obtain certificates that are issued by qualified certificate authorities. However, the problem is that unlimited use in the private sector is not permitted at present.

(4) Issues to Be Examined

1) Visualization of effects of investments in digital signatures

For the purpose of making use of digital signatures, a large amount of investment (cost) is needed in many cases to develop an authentication infrastructure and other similar infrastructures. It is important to establish a method that shows the investment benefits to businesses in an easy-to-understand manner.

2) Proposal on a model in which ready-made digital signatures are utilized

In some cases, such as in exchanging purchase orders and order receipts in rather small transactions and in placing seals to confirm and record business intents in online auctions, it is appropriate to use simple and cheap signatures although they are not very robust. It is necessary to examine such a model. 3) Formulation of guidelines for introducing digital signatures

It is necessary to further implement educational activities on the essential applicability of digital signatures. This should be done by presenting both best practices and utilization model groups in which the true power of robust digital signatures can be fully demonstrated. It is also necessary to formulate guidelines to support the introduction of robust digital signatures, which is not an easy task because of the required robustness.

Summary

We think that definite identity verification in online transactions leads to quick problem-solving, because the identifying information serves as a crime deterrent and enables identity tracking in case of any unexpected problems. Some people say that attention should be paid to privacy in disclosing such information, but we think that providers and businesses in charge of auctions can responsibly manage personal information so that it is disclosed only when problems occur and that there are other similar methods that we can adopt without problems.

In the future, based on the results of the examination in 2005, we will make a system consisting of mainly user companies and will further examine issues.



Figure 1. Correlations among Main Problems with Diffusion of Electronic Signatures and PKI as Basis of Them



Overview of Activities

Private companies have been required to keep hardcopy versions of tax-related documents and so on (papers, books, etc.), but the Law concerning e-Documents that was put into effect in April, 2005, has enabled the storage of such documents as digital data. Given that electronic documents with signatures can be stored for a long period of time, it is safe to say that the system used by the e-signer may not necessarily be the same as that used by a person verifying the document after an interval of decades. We can also imagine that the introduction of a system that is not in conformity with standard specifications would make the purchaser subject to restrictions by only one vendor and that the purchaser also may have difficulty in making use of data stored in the system due to service suspension by the vendor.

Since 2000, ECOM has been engaged in formulating guidelines and conducting a variety of research studies on technologies for storing documents and documents with electronic signatures. Through these activities, some vendors developed products for practical use and these technologies were used in specific projects. However, in many cases, implementation of the technologies remained within vendors, leaving interoperability undemonstrated. Therefore, this time, our group conducted an interoperability experiment by recruiting a wide range of participating companies.

Activity Results

For the purpose of recruiting a wide range of participants in this experiment, we sent out four press releases in total in 2005. Press release titles are presented below.

- "ECOM Starts the Activity to Implement an Interoperability Test on Products in Long-term Digital Signature Format" (May 13, 2005)
- "Long-term Digital Signature Format Profile Completed, Feedback-Gathering Starts" (August 10, 2005)
- "ECOM Completed Long-term Digital Signature Format Profile, and Recruitment of Participating Companies in an Interoperability Test Starts" (September 21, 2005)
- "Results of Interoperability Test of Long-term Digital Signature Format Profile Will Be Presented on December 16". (December 14, 2005)

As specific activities, for the purpose of diffusing and establishing in Japan a long-term digital signature format based on traditional formats and standards, such as CAdES^[1] and

XML-based XAdES^[2], we first developed the "long-term digital signature format profile" for uniquely interpreting ambiguous expressions of standards. Next, we developed a test specification based on this profile and, together with 13 companies participating and 2 companies collaborating in the experiment (by providing test data and a test environment), implemented an interoperability test on the products (including some prototypes) of each company that joined the experiment.

The results of the test were reported at the "Seventh ECOM Seminar" on December 16, 2005, and the "Long-term Storage Format Diffusion Seminar" was held on February 24, 2006, in which 9 participating companies presented their own products.

(1) Development of the Long-term Digital Signature Format Profile

Portability is one of the greatest features of the long-term digital signature format profile. In other words, "its specification is open to the public, and everyone can construct and verify it. In addition, half-constructed long-term signatures can be adopted by other people". However, both CAdES and XAdES are complicated specifications and include redundant definitions for our purpose: "basic concept and requirement for the maintenance of the long-term effectiveness of digital signatures^[3]". On the contrary, they lack necessary definitions and include ambiguous interpretations.

Therefore, to resolve these problems, we defined a standard profile (ECOM profile) based on the following policies.

- 1) Definitions that ensure interoperability should be supplied. Ambiguous interpretations should be clarified, and necessities that are not clearly written should be added.
- 2) For the purpose of reducing workload associated with the implementation, redundant definition choices should be eliminated and the essential implementation range should be reduced.

(2) Design of Test Data

We designed test data to be used for verification and released it to the public so that a wide range of users waiting for domestic and overseas implementations could make use of it even after the end of the field trials period.

(3) Interoperability Test

In the field trials, we conducted two types of tests: a test in which data was generated in a device (system) implemented by a participating company and all other participating companies mutually verified the data, and another test in which verification functions including "success and failure" were confirmed. The former test is called the "online matrix generation and verification test"; the latter one is called the "off-line verification test".

1) Online matrix generation and verification test

This test aims to confirm if effective data based on a long-term signature format, which is generated by an implementation, can be commonly read and verified. We made use of predesignated data to be signed, certificates, CRL (certificate revocation list), and time stamping services, and generated long-term signature format data (ES-T, ES-X Long, and ES-A)^[4] by using the products of all participating companies. We also verified that data generated by products of any one company were effective to each of the other products of all other participating companies. We obtained CRL and time stamp tokens on the basis of online and generated an ES format (ES-T, ES-X Long and ES-A) that was effective for each product, by making use of designated certificates, CRL and time



Figure 1. Online Matrix Generation and Verification Test

stamping services. We read generated data in each product and examined its effectiveness. We obtained CRL and TSA (time stamp authority) on the basis of online, and acquired other documents and services on the basis of off-line.

2) Off-line verification test

This test aims to confirm if data can be correctly verified by means of common ES format data based on the profile of ECOM. We confirmed whether the results of verification coincided with expected values based on ES-format data generated by test tools (ES, ES-T, ES-C, ES-X Long and ES-A), certificates, CRL and data to be signed.



Figure 2. Off-line Verification Test

Summary

All the 13 companies that participated in the experiment passed the test.

In the future, we will make efforts to diffuse the profile developed by ECOM and will implement PR activities toward standardization organizations.

Bibliography

 CAdES (CMS (Cryptographic Message Syntax) Advanced Electronic Signature) is prescribed in RFC3126: Electronic Signature Formats for long term electronic signatures.

RFC: Request for Comments (a series of documents concerning the results of examination on standards, etc., by IETF (the Internet Engineering Task Force)

ETSI TS 101 733 V1.6.3 (2005-09) "Electronic Signatures and Infrastructures (ESI); CMS Advanced Electronic Signatures (CAdES)"

ETSI: European Telecommunications Standards Institute

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- [3] Guidelines on the Long-term Storage of Documents with Electronic Signatures, Electronic Commerce Promotion Council of Japan, March 2002
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Overview of Activities

With the development of a network society, the importance of information security as well as the range of issues to be studied in that regard has been increasing more and more. From its inception, the previous ECOM had carried out activities to address the issue of information security. Over time, the environment has changed so that now any business is able to make use of EC. Based on this change and taking into account the importance of exchanging information and opinions, from a new perspective, on topics as well as issues to be resolved by the governmental collaboration with the private sector, the "Information Security SWG" continued the activities of the former ECOM in FY 2005 following FY 2004. Opinions on the themes set out in Figure 1 were freely exchanged between invited intellectuals and related members who were interested in information security.

Activity Results

In FY 2005, we shared information on the following issues with internal and external participants, including ECOM members: (1) spread of EC utilization over the entire nation and development of an EC utilization environment in which anyone could be a victim, (2) trade-off relationship between private interests and public interests (safety) in the utilization of personal information, (3) social environment in which service providers (companies) could see significant reputation loss due to information leaks or other similar incidents, (4) information leaks as global problems and the influence of overseas information leaks on domestic affairs, (5) evolution of EC into a distributed system environment in which general users can obtain massive amounts of information, (6) development of information security risks into organized crimes for profit, (7) improvement of the awareness and understanding of the risks associated with the use of the Internet, etc.. An outline of lectures and free discussions (exchange of opinions) at each meeting is summarized below as our activity results.



Figure 1. Themes for FY 2005

<Theme 1> Court Decisions on the Basic Resident Register Network System

(1) Outline of the lecture

The lecturer presented the process of court decisions on similar and simultaneous cases concerning a range of issues, including the basic resident register network system (the Kanazawa District Court decided it was "unconstitutional" and the Nagoya District Court decided it was "constitutional") and the issue of "self-information control right" as a bottleneck.

(2) Main opinions in free discussions

In free discussions, opinions were exchanged on the following issues.

- 1) Different legal judgments on the same issue at the same time is confusing for information system providers.
- 2) In the utilization of personal information, there is a trade-off relationship between private and public interests. It is important to disclose the purposes for using the information, based on an appropriate prior study.
- Service providers cannot conduct business without personal information. While it is necessary to appropriately manage personal information, service providers cannot provide services if restrictions are excessive.
- 4) What is fundamentally different from the use of personal information by private companies is that information on all target persons are compulsorily stored by a public power in the case of the government.
- 5) Licenses and officially-registered seals are now used as methods for identity verification. In promoting electronic commerce, basic resident register cards are important as tools for safe and secure identity verification.

<Theme 2> Measures Necessary for Ensuring Information Security

(1) Outline of the lecture

The lecturer talked about changes in the information security environment surrounding companies, the necessity of information security governance, fundamental relations between policy tools and information security management systems (ISMS)/system audit schemes, and other immediate actions that organizations and individuals should take.

(2) Main opinions in free discussions

In free discussions, opinions were exchanged on the following issues.

- Contribution of the effective utilization of IT, such as inter-company value chains, to improvement in corporate performance and the significant influence of IT on society, customers and management
- 2) Frequent occurrence of information leaks from important infrastructures including leakage of credit card information on approximately 40 million people from an information processing company in the United States (June 17, 2005)
- 3) Rapidly heightened awareness about information security among Japanese companies due to a spate of IT accidents

- Undeveloped information security measures other than the introduction of anti-virus software and fire walls into the majority of personal computers
- 5) Unclear cost-effectiveness and unestablished standard (level) of achievement acting as major deterrents to investment in information security by Japanese companies

<Theme 3> A Solution that Removes the Need to Transmit All Information

(Distributed Data Security)

(1) Outline of the lecture

The lecturer introduced a new solution that enabled payment without giving unnecessary information (such as credit numbers) to site operators in transactions among users, site operators and payers by dividing and transmitting personal information including credit numbers. The lecturer also presented specific security problems, problem-solving efforts, and other related information.

(2) Main opinions in free discussions

In free discussions, opinions were exchanged on the following issues.

- 1) Development of a distributed system environment in which general users can obtain massive amounts of information
- Impossibility of decoding solutions that are based on distributed data security due to division of original data itself, unlike cryptography
- 3) Necessity of establishing roles and security concepts for organizations to which data is distributed

<Theme 4> Trend in International Standardization of Information Security Technologies

(1) Outline of the lecture

Based on the results of an international conference (JTC1/SC27) held in November 2005 and other similar meetings, the lecturer provided information on trends in the international standardization of information security technologies (SC27), including the establishment of the ISO/IEC 27000 series (systematization of information security (April 2005)), plans for the inclusion of ISO/IEC 17799 and 27001 into JIS, and changes in the ISMS authentication system.

(2) Main opinions in free discussions

In free discussions, opinions and questions were exchanged on the following issues.

- Stricter expressions are used in international standards for information security: from "should" (desirable) to "shall" (must).
- 2) How a cryptographic algorithm is registered in ISO.
- 3) Public evaluation organizations are necessary for ISO registration.
- 4) Whether BS7799 and others will be consolidated.
- 5) Accreditation organizations such as ISMS etc. should be included in international accreditation organizations.

<Theme 5> Reality of Spyware and Countermeasures

(1) Outline of the lecture

With regard to the reality of spyware and countermeasures, the lecturer presented information on such issues as the increasing damage from spyware, the characteristics of spyware that could not be easily detected and identified and five important points for spyware countermeasures.

(Japan Network Security Association:

http://www.jnsa.org/spyware/index.html)

(2) Main opinions in free discussions

In free discussions, opinions were exchanged on the following issues.

- 1) Diffusion of EC utilization into the entire nation and development of a utilization environment in which anyone could be a victim
- 2) Development of information security risks into organized crimes for profit
- 3) While cutting-edge intrusion technologies are being further developed, countermeasures are one step behind. There will be greater requirement for responses at the stage of product development.
- 4) Necessity of paying full attention to the reality of spyware and countermeasures
- 5) Countermeasures should be implemented after they are separated into two categories: technological countermeasures and non-technological countermeasures.

<Theme 6> Public Personal Authentication Service

(1) Contents of the lecture

The lecturer talked about the development of the public personal authentication service, the revision of the Law concerning the Public Personal Authentication Service, use of the public personal authentication service for identity verification at the time of opening accounts, and the study of the expansion of use into public-interest areas (healthcare and welfare, portal site through joint initiatives between the public and private sectors, etc.).

(2) Main opinions in free discussions

In free discussions, opinions were exchanged on the following issues.

- 1) The public personal authentication service can be an important identity verification method if it is expanded together with authentication infrastructures for controlling access to information in the area of medical care, etc.
- 2) Recent trend in the public personal authentication service
- 3) The public personal authentication service will be necessary as a step for starting private procedures
- Importance of user-friendly applications for diffusion and promotion of the public personal authentication service, etc.

<Theme 7> Trend and Problems in Biometrics Security

The lecturer covered such topics as biometrics security, characteristics and cases of biometrics personal authentication, weakness of biometrics (template protection), social awareness, interoperation, and public rules and guidelines in the private sector.

(2) Main opinions in free discussions

In free discussions, opinions were exchanged on the following issues.

- 1) There is no information that is more personal than biological information. As a countermeasure against theft and leakage risks, there is a method that creates PKI private keys and does not require the retention of biological information itself.
- It is most likely important not to retain biological information, from the viewpoint of ensuring social acceptability.
- 3) A recently developed method called multi-modal (based on the use of multiple identification data) is available.

<Theme 8> Risks Associated with the Use of the Internet from the Viewpoint of a Person in Charge of Infrastructures

(1) Contents of the lecture

The lecturer talked about risks existing in the use of the Internet from the viewpoint of a person in charge of infrastructures: who is on the other side of the Internet, whether we always confirm "access points" and "senders", whether server certificates can protect us from all risks, which received information should we believe, whether the Internet is a business "tool", etc.

(2) Main opinions in free discussions

Discussions on this theme were held twice, based on the development of an environment in which everyone has started to make use of EC.

In free discussions, opinions and questions were exchanged on the following issues.

- 1) Attitudes of participants from a variety of areas, regarding the various risks associated with the Internet
- 2) Without even noticing, people are beginning to forget the potential risk of information leakage that is present in the use of the Internet and e-mails.
- 3) E-mails are not sent in envelopes (secrecy).
- 4) Senders, messages and websites can be altered (credibility).
- 5) Whether people are making good use of the Internet as a tool, based on an understanding of the above-mentioned risks
- 6) Whether individuals know how to tell "safety" from "dangers"
- 7) Whether the credibility of servers is ensured from the viewpoint of clients
- 8) Different countermeasures should be taken according to the type of problem: bugs, vulnerability and risks.
- 9) Necessity to improve awareness and understanding of risks associated with the use of the Internet

(1) Contents of the lecture

Future Expectations

In FY 2006, we will not only implement activities based on themes, which we determined at the beginning of the fiscal year, but also ascertain the latest information and provide opportunities for exchanging information and opinions, from a new perspective, on topics as well as problems to be resolved under joint initiatives between the public and the private sectors. We will invite outside intellectuals and provide opportunities for lectures and free discussions with SWG members of ECOM, mainly regarding the latest events, laws, standardization efforts, policies, solutions and problem awareness issues with respect to information security. In FY 2005, we exchanged information only within participating members, but in FY 2006, we will also disseminate information to other parties, through ECOM News and other similar media.

Table 1. History of Activities of the "Information Security SWG"

| Meeting | Date |
|-----------|---|
| Category | SWG Theme/Lecture Title |
| First | July 7, 2005 |
| Theme | Kanazawa (Ishikawa Prefecture) district court decision on the basic resident register network system and the legality of security systems |
| Lecture | Interpretation of the court case on the basic resident register network system |
| Second | October 25, 2005 |
| Theme | Measures necessary for ensuring information security against personal information leaks |
| Lecture 1 | Measures necessary for ensuring information security |
| Lecture 2 | A new payment model where it is not necessary to transmit all card information over the Web |
| Third | November 28, 2005 |
| Theme | Trends in the standardization of information security technologies and spyware hidden in the Internet |
| Lecture 1 | The latest trend in the standardization of information security technologies |
| Lecture 2 | Reality of spyware and countermeasures |
| Fourth | February 3, 2006 |
| Theme | Information security authentication and risks associated with the use of the Internet |
| Lecture 1 | Latest trend in the public personal authentication service |
| Lecture 2 | Trends in biometrics security and related problems |
| Lecture 3 | Risks associated with the use of the Internet from the viewpoint of a person in charge of infrastructures - How to confirm who is on the other side of the Internet - |
| Fifth | March 8, 2006 |
| Theme | "Risks associated with the use of the Internet (2)" |
| Lecture | Risks associated with the use of the Internet from the viewpoint of a person in charge of infrastructures |
| Report | Summary of the year events and activities |

<Reference> Information Security SWG of ECOM for FY 2005

Objective:

In implementing activities, instead of sticking only to activity plans that were determined and reported at the beginning of the fiscal year, we aim to provide opportunities for the frank exchange of opinions on the current status of information security ("what kind of problems are occurring in actual society?") among members who relate information security to their own jobs and businesses. Through such discussions, we also aim to mutually raise the level of participation and find activities that are truly needed for ECOM.



Overview of Activities

(1) Introduction – Purpose of WG Establishment –

The IT Utilization WG was established to provide opportunities for WG participants to examine advanced cases of B2B EC and B2C EC in order to gain a better understanding of a wide range of utilization cases.

According to the "Survey of current status and market scale of e-business in FY 2004", the B2C market amounted to 5.6 trillion yen and Internet-based B2B market reached 102 trillion yen (this figure comes to 190 trillion yen if the network includes leased lines, VAN etc., other internet). It can be said that the early diffusion stage of EC has already ended in Japan and that individual companies are now introducing EC in accordance with their own characteristics.

Participants in this WG aimed to obtain advantageous information to their positions by choosing cases that were useful for catching up with the above-mentioned development (called "advanced cases") and by obtaining reports directly from persons in charge of actual business operations.

(2) Definition of Advanced Cases

"Advanced cases" are can be separated into the following categories.

- 1) Themes and cases that attract the interest of WG participants
- 2) "Advanced" cases and themes from the perspective of the Secretariat

With regard to the first category, as written in the "Introduction", we chose themes and cases that reflected the issues experienced by the companies participating in the WG.

With regard to the second category, we chose advanced themes and cases, based on the "Survey of current status and market scale of e-business in FY 2004", a survey that has been jointly conducted for several years now by ECOM, the Ministry of Economy, Trade and Industry, and other similar organizations, and the "Survey on Domestic and Overseas Trends in B2B EC", a survey conducted by ECOM alone.

(3) WG Management Method

This WG aims to study advanced cases as well as cases in relation to themes chosen by participants, under the slogan of "case studies on the latest B2B and B2C EC". For this purpose, we asked a wide range of ECOM members, academic experts, related industry groups and companies to participate in the WG as observers. We held four WG meetings, in which so-called case study meetings with lectures on a couple of cases each time were included. We held three case study meetings in total, and eight lectures, including a lecture by the Secretariat, were given.

Activity Results

Results of activities (contents of lectures) are as follows.

- 1) With regard to B2C EC, the home-delivery service of health food products was taken up as an example. The original business model has succeeded and is being examined toward market expansion.
- 2) Next, with regard to sales expansion by means of the Web, a major auto manufacturer was chosen as an example. Steady effects of sales expansion by means of the Web were confirmed based on a comparison between the Web and conventional media such as TV, newspapers and magazines.
- 3) With regard to B2B EC, the e-marketplace used as a bridge between mold builders and users was taken up as an example. In this case, the function of a virtual plant has been brought into the e-marketplace as a place for business matching among domestic companies. The plant directly receives orders and sends them to excellent process manufacturers.
- 4) Next, a major electric power company was chosen as an example. For the purpose of reducing the price of power so as to survive the intensified competition in the industry, the company positions its EC division as a strategic one to reduce procurement cost and views B2B EC as an important tool to implement its strategy.
- 5) EDI platform businesses in the industry of daily necessities, miscellaneous goods and cosmetics have started to adopt an Internet-based communication protocol, called AS2, instead of the leased lines used in the past, and they are adding services for further diffusion.
- 6) The introduction and effects of ERP as an internal corporate core system to support B2B EC were presented based on an example of a major chemical company.

7) A major electric-appliance manufacturer made a presentation on the process of SCM introduction (the company introduced SCM during the heyday of the IT bubble, but it had to review and reintroduce SCM because it did not work well at first). The manufacturer provided useful information for companies under the same circumstances.

Future Expectations (Summary)

This year, instead of sticking to certain themes, we chose cases in line with the keyword of "advanced cases" as mentioned above. As is shown here, individual companies have introduced and have made use of both B2C and B2B to realize their objectives. We expect the companies that have already started to utilize B2C and B2B EC to make improvement in those areas, based on the understanding of such current circumstances. On the other hand, we expect companies that will introduce B2C and B2B EC to carefully introduce them, based on the available information.

In this sense, we think that the information that we have obtained this year is useful.

Next year, we plan to summarize information on the measurement of the effects of IT and EC and to make use of that information to promote a more effective utilization of IT and EC.

| Ostana | Meeting | Date | | |
|----------|---|--|--|--|
| Category | Description of a | Description of activities | | |
| Seminar | Second | July 21, 2005 | | |
| | ECOM Seminar: | Survey of current status and market scale of e-business in FY 2004 | | |
| WG | First | September 2 | | |
| | WG activities and future management policies, and outline of the Survey of current status and market scale of e-business in FY 2004 | | | |
| | Second | November 2 | | |
| | First case study meeting: three lectures on B2B cases | | | |
| | Third | January 12, 2006 | | |
| | Second ca cases in Euro | se study meeting: two lectures on B2C cases, business trip report on pe and the United States | | |
| | Fourth | February 10 | | |
| | Third case | study meeting: two lectures on B2B cases (ERP and SCM systems) | | |

| Table 1 | History of | Activities of | the "IT | Iltilization | WG" |
|----------|------------|---------------|---------|--------------|-----|
| Table I. | | Activities of | the II | Ullization | wg |



Current Status of Computerization 1. of Application Procedures and Related **Problems**

2005 was the final year of the "e-Japan Strategy" and the year when results of the electronic government construction plan were submitted. As a result of a series of these policies and measures, 96% of applications and notifications to the national government have gone online. However, the utilization ratio of electronic applications is still below 1%. In the "New IT Reform Strategy" following the "e-Japan Strategy", one of the pillars of the action plans is to increase the utilization ratio of electronic applications up to 50% by 2010.

ECOM has implemented WG activities regarding electronic government procedures for the past five years under a consistent theme, that is, utilization of electronic government from the perspective of users. This year, under two themes, which are "procedures in relation to employees" and "electronic tax filing", we examined measures for electronic government diffusion as well as problems with the reduction of the corporate burden in administrative procedures. As a result, we have reached the conclusion that companies have high expectations for electronic governments and municipalities and that the creation of such electronic organizations is a very effective measure for companies to reduce indirect cost in particular.

For example, according to our questionnaire survey on the current status of retirement procedures, to which 1,000 companies and 400 people who had recently retired or who were about to retire in the not-so-distant future gave responses, more than 90% of the respondents wanted the introduction of online applications and notifications.

According to our another questionnaire survey targeted at general citizens, approximately 70% of 21,047 respondents expressed dissatisfaction with current administrative services, mainly because of "time-consuming procedures" and "limited office hours", and more than half of the respondents answered that "they wanted to make use of electronic government if given the chance". In addition, the overwhelming majority of the respondents chose "electronic application and notification" as the service that they wanted to use because "it would save them the trouble of going to contact points" and because "they would be able to go through procedures in their free time". Judging form their answers, it can be said that general citizens have expectations for electronic applications as measures to eliminate dissatisfaction with current administrative services.

As for reasons for the low utilization ratio of electronic applications in spite of high expectations as mentioned above, many respondents pointed out the following problems: "unavailability of information on the procedures that can be gone through over the Internet", "cumbersome acquisition and operation of public personal authentication", and "impossibility of package application due to computerization per contact point". As for public personal authentication in particular, judging from the fact that only limited kinds of procedures have been computerized in electronic municipalities, such as "procedures in which identity verification is not required by nature" (e.g. request for disclosure of official administrative documents), "procedures in which identification is verified separately and face-to-face at the time of utilization" (e.g. facility reservation), and "procedures in which important legal relations are not changed and relations of rights can be easily restored even in the case of an impersonation" (e.g. registration and death notification of dogs), we think that we have fallen into a negative spiral: the low acquisition ratio of public personal authentication has been impeding the construction and diffusion of electronic applications, and the limited availability of services has been hindering the acquisition of public personal authentication.

Therefore, this year, our WG examined the following possibilities for resolving problems with diffusion of electronic applications.

1) Flexible application of authentication methods

In principle, electronic applications submitted to the national government require identity verification by means of electronic signatures based on public personal authentication. Public personal authentication in applications submitted to municipalities is adopted in order to prevent impersonations.

On the other hand, it can be said that we have fallen into a negative spiral: the low acquisition ratio of public personal authentication has been impeding the construction and diffusion of electronic applications and the limited availability of services has been hindering the acquisition of public personal authentication. Can't we establish a more flexible application scheme of electronic signatures to break out of this situation?

Can't we create a multiple-step authentication method other than PKI?

2) Promotion of utilization in the private sector

Companies are the heaviest users of electronic applications and notifications.

They will recognize the convenience of electronic government procedures and will positively make use of them, if the problem with the corporate burden in administrative procedures is resolved. At the same time, if companies are involved as core players in the development of electronic application/notification services, it is easy to imagine the use of the electronic administrative services spreading to employees.

In addition, in constructing easy-to-use services, we think that the utilization of many experts (officially certified intermediary agents, such as lawyers, public consultants on social and labor insurance, tax accountants and administrative scriveners) in Japan would contribute to providing more user-oriented services.

3) Improvement in incentives to users

Citizens are sometimes required to submit applications and filings to administrative organs. They go through necessary procedures even if the procedures are somewhat inconvenient. However, the utilization of electronic application and/or electronic filing is not compulsory. Nobody will make use of such services if they are not user-friendly.

For the purpose of providing user-friendly services, it is essential to construct effective services based on the needs of users and to provide systems of high utility value. I think that the most reliable method to achieve this goal is to freely construct easy-to-use systems based on ideas of the private sector by releasing e-file user interfaces to the private sector. Companies have stored an enormous amount of information as a basis for administrative procedures in their own computers, but if the computers are not seamlessly connected to administrative systems, manual procedures between the computers and the systems remain in the end. Can't we create a streamlined scheme for appropriate collaboration between corporate and administrative systems?

2. Improvement in Efficiency in Procedures in Relation to Corporate Employees

The primary administrative procedures related to corporate employees are listed in Table 1. In regard only to the primary administrative procedures, there are as many as eighteen procedures. In addition, the administrative organ with the related jurisdiction will differ according to the following three classifications: tax, social insurance and labor insurance. Documents should be submitted to the applicable organization.

As for tax-related procedures in particular (submission of salary payment reports for year-end adjustments and the inhabitant tax, etc.), companies must, on an annual basis, prepare, sort and mail documents for all employees in different formats according to the municipalities in which the employees live, requiring companies to perform a large amount of labor.

Employees, on the other hand, have to make "applications for welfare service benefits for the elderly" when they retire. Documents necessary for going through procedures depend on the conditions of the individual persons, but if a person has a spouse and has never taken out insurance other than employees' pension insurance (fraternal insurance, etc.), he or she usually has to obtain a variety of documents in advance and submit them to social insurance offices and other similar organizations, as shown in Figure 1.

The necessary documents are obtained from different places and through different methods, and individuals need to obtain them by visiting each contact point. Many people do not even know the need to go through such procedures until they are required to do so.

| CI | lassification | Main Procedures | Submission |
|---------------------|---|--|--|
| Тах | Income tax | Submission of salary payment reports (once a year/at the time of entrance) | To taxation offices exercising jurisdiction over companies |
| | Inhabitant tax | Submission of salary payment reports (once a year/at the time of entrance) | To municipalities in which employees live |
| | | Notification of tax amounts (once a year/at the time of entrance) Notification of job transfers (at the time of retirement, job relocation, etc.) | To employees To municipalities in which employees live |
| Social insurance | Social insurance Medical care insurance Notification of qualification (at the time of entrance) Notification of disqualification (at the time of retirement/job relocation) | | To health insurance societies and social insurance offices exercising jurisdiction over companies (administratively managed health insurance) |
| | Pension insurance | Notification of qualification (at the time of entrance) Notification of disqualification (at the time of retirement/at the age of 70) Notification of changes in nonworking dependents (when employees get married, when children are born, etc.) Notification of address changes (when employees change residences) Notification of calculation bases for monthly earnings of insured people (once a year) Notification of changes in monthly earnings of insured people (when salaries are significantly increased or decreased) | To social insurance offices exercising jurisdiction over companies |
| Labor insurance | Employment insurance | Notification of qualification (at the time of entrance) Notification of disqualification (at the time of retirement) Confirmation of eligibility for child-care leave and/or family-care leave (when employees take child-care and/or family-care leave) Procedures for the payment of child-care leave benefits (when child-care leave takers return to work) Confirmation of eligibility for old workers' salary supplement and reemployment benefit (when people aged 60 and over are employed) | To public employment security offices exercising jurisdiction over companies |
| | Workers' accident compensation insurance | Insurance payment procedures (when employees are involved in industrial accidents) | To labor standards supervision offices exercising jurisdiction over companies |

Table 1. Main Administrative Procedures in Relation to Corporate Employees

In 2007, many baby boomers will retire at the same time. The number of baby boomers that are full-time corporate employee is estimated to be approximately 3.4 million (when the baby-boom period is considered to be 3 years) or 5.8 million (when the baby-boom period is considered to be 5 years).

On average, it takes approximately 2 hours and 35 minutes for companies to complete retirement procedures for each employee. On the assumption that personnel expense per person in charge is 5,000 yen per hour, the corporate burden would be between 43.9 and 74.9 billion yen.

<Amount of corporate burden related to retirement procedures for baby boomers>

(Personnel expenditure × Average time for procedures × Number of full-time employees = Expenditure for retirement procedures)

For those who were born between 1947 and 1949: (5,000 yen per hour) × (2 hours and 35 minutes) × (3.4 million) = 43.9 billion yen For those who were born between 1947 and 1951: (5,000 yen per hour) × (2 hours and 35 minutes) × (5.8 million) = 74.9 billion yen

Given the fact that many baby boomers will retire at the same time two years from now, it is imperative that companies streamline procedures for employees.

A related questionnaire survey that was given to both persons in charge of general affairs and/or human resources and individuals in and around the baby-boom generation received responses from 1,050 companies and 410 corporate employees in the baby-boom generation (specifically, between 55 and 64 years old). According to this survey, companies have not only the year 2007 problem but also an extremely heavy workload related to existing administrative procedures, especially procedures for preparing salary payment reports, and procedures related to year-end adjustments/certificates of income & withholding tax. As a result of verifying the time necessary for these two kinds of procedures and simply calculating the time necessary for each employee and the number of targeted employees based on that verification, we discovered that the corporate workload associated with both salary payment reports and year-end adjustments / certificates of income & withholding tax reaches a total of 200 billion yen each year.

<Corporate* administrative expenditure>

Salary payment reports: (5,000 yen per hour) × (2.26 hours) × (7.986 million) = 90.24 billion yen Year-end adjustments and certificates of income & withholding tax: $(5,000 \text{ yen per hour}) \times (2.87 \text{ hours}) \times (7.986 \text{ million}) = 114.59 \text{ billion yen}$

| | | System | Contact point | Governing agency |
|--------------|---|--|------------------------------------|---|
| | other similar documents (*) | Domicile registry system | Municipality | Ministry of Justice |
| | Insurance card under employment insurance (documents in relation to employment insura | And Integrated system for employment incurance | Job-placement office | Ministry of Health, Labour |
| | Pension book (★) | (Pension book) | (Self-storage) | Ministry of Health Labour |
| | Notice to confirm pension enrollment period | and | (beir storage) | and Welfare |
| | Documents to confirm basic pension number a coverage period, spouse's pension book (* | and joint) and | Benefit associations | Ministry of Health, Labour and Welfare |
| | documents related to health insurance | Online social insurance system | Social insurance office | Social Insurance Agency |
| Self- | Annuity certificate | Pension insurance systems | Pension insurance organizations | Ministry of Health, Labour and Welfare |
| an applicant | Documents to confirm the maintenance of livelih | bod (*) National tax system | Tax office | National Tax Agency |
| | Documents to confirm the maintenance of liveli | nood (*) Inhabitant tax system of each local | Municipality and | Same as on the left |
| | Certificate of residence (*) | Basic resident registry system | Municipality | Ministry of Internal Affairs |
| | | | warnopanty | and Communications |
| | Documents related to health insurance | National health insurance systems | Municipality | Ministry of Health, Labour and Welfare |
| | Documents related to health insurance | Cooperative health insurance | Cooperatives | Ministry of Health, Labour |
| | Doctor's certificate and X-ray films | (Dector's certificate and X ray films) | Propared by a dector | |
| | Post office certificate | | Frepared by a doctor | |
| | | (Post office certificate) | Prepared by a post office | - |
| To | be submitted in addition to a written application for | the | | 1 |

*Companies that have 50 or more employees and are capitalized at 30 million yen or more

welfare benefit services for the elderly

To a social insurance office, an office of a social insurance bureau or a pension consultation center exercising jurisdiction over the company in which the applicant was last employed as an insured person

Asterisks (*) indicate documents that usually must be obtained by a person who has a spouse and has never taken out insurance other than employees' pension Note: insurance (fraternal insurance, etc.).

Figure 1. An Example of Procedures That a Retiree Has to Go through (Application in Case of a Company on the Lowest Level of Welfare Benefit Services for the Elderly)

Individuals, on the other hand, show a strong desire to have not only in-house consultation and support for document preparation but also improvements to online services so that they have the ability to complete retirement procedures within a corporate IT environment before they retire.

Despite the strong need and related demands for online procedures as mentioned above, there hasn't been a significant use of online services seen.

In our opinion, for the purpose of promoting the utilization of online services, it is necessary to get companies involved as heavy users and to start with the retirement procedures and

other procedures for which there is a strong demand for improvements (such as salary payment reports and year-end adjustments / certificates of income and withholding tax) (Figure 2). It is also necessary to expand the utilization of the corporate environment by individual employees, by making it a one-stop base for administrative procedures. We think that, through these measures, companies will be able to provide an easier-to-use environment for employees that will help them handle complicated administrative procedures, by allowing them to make use of advantages such as developed infrastructures, including personal computers and immediate advisers (Figure 3).

When it is necessary to distribute documents to employees or fill in documents When it is necessary to submit copies of the same document to many (e.g. year-end adjustments, certificates of income & withholding tax, etc.) organizations (e.g. salary payment reports and other similar documents) Employee City A Employee City B Administrative Employee organs, etc. City C Employee Town D Employee Corporate employee Corporate employee Town E in charge in charge

Figure 2. Corporate Procedures on which a High Priority for the Development of Online Services is Placed

 In the office, it is easy to make use of internal devices and infrastructures, to obtain necessary documents and to consult and exchange information with other people

(e.g. the variety of retirement procedures, year-end adjustments, final tax returns, etc.) Ministry A Ministry B Agency C Agency D City E Utilization of in-house devices Consultation and and infrastructures information Consultation and acquisition exchange of necessary documents Colleagues Corporate employee In-house systems in charge

Figure 3. Advantages for Each Retiree Gained by Going through Necessary Procedures from the Office

3. Penetration Ratio of Electronic Tax Filing

The parties that are involved in tax filings and payment procedures include the tax payers (individual residents and companies), the tax authorities, and the agents who support tax payers with a variety of procedures (certified tax accountants, etc.). A key point in increasing the utilization of electronic tax filing and payment systems is the provision of user-friendly systems for tax payers. Given the fact that no less than 90% of small and medium sized enterprises use experts to file their taxes and the fact that more than half of the companies also contract the experts to perform accounting and financial services as a preliminary step toward tax filing, it is safe to say that what is crucial is how to incorporate the function of certified tax accountants and other similar experts who are deeply involved in existing tax filing procedures (hereinafter referred to as the "private coordination function") into the systems.

When we sorted the problems associated with current electronic tax filing and payment systems from the perspective of certified tax accountants based on discussions with them, we identified the problems shown in the Figure 4.

In principle, procedures related to electronic tax filing and payment systems should be computerized based on the needs of tax payers and tax authorities. However, we have a strong impression that the current e-Tax system was developed mainly based on technological studies with the assumption that traditional paper-based filing procedures would be continued on the Internet without modification. Computerization of tax filing procedures does not necessarily mean an improvement will be seen in the operational procedures of the tax authorities after tax returns are received. On the contrary, the workload sometimes increases due to computerization. For example, there may be duplicated operational processes caused by the coexistence of the e-Tax filing system and the paper-based tax filing system, and there may be a need to cross check e-Tax filing data with separately mailed supporting data.

In other words, it is rare that improvements have been made in the most workload-heavy processes for tax payers, such as the preparation of the base data for tax filing and other preparatory work, including journal entries for income and deductions. The Internet is available only as one of the methods to submit tax returns at the last stage of the tax filing procedures. On the contrary, procedures that are needed to use the Internet for these purposes, such as the acquisition of public personal authentication, are placing a new burden on tax payers.

We conducted a questionnaire survey targeting corporate employees in charge of tax affairs because we thought an effective way to consider what an ideal e-Tax system would be for the future would be to ascertain and analyze the true needs of tax payers, which have not yet been fully determined. Among survey results, in particular, there were many highly informative unreserved opinions not only on the e-Tax system but also on the entire process for tax filing procedures. Responses, including the candid opinions given, can be summarized into four categories as shown in the Figure 5.



Figure 4. Problems with Electronic Tax Filing



Figure 5. Current Status of Tax Payers Based on Survey Results

For the purpose of meeting the needs of tax payers, which were clarified through this survey, we think that it is necessary not only to improve the function and operation of the current e-Tax system but also to review, based on those needs, the overall operational process related to tax filing and payment, which has been used by tax payers, tax authorities and certified tax accountants and other similar experts as agents for tax payers. Following this review, consideration should be given to how to make use of the Internet or e-Tax system when needed. From this standpoint, as a proposition, we recommend below the "establishment of a Private Coordination Organization" as a complete new scheme for tax filing and payment.

As shown in the Figure 6, the roles of the Private Coordination Organization are roughly classified into user service and service designated by tax authorities. What would be provided as user service is not only tax filing service, which has been provided by certified tax accountants and other similar experts, but also CRM service in which tax information related to corporate tax payers as continuous clients is managed and client-by-client segmented services are provided. In filing amended tax returns and responding to tax examinations after final tax returns are filed, the organization would, if necessary, also talk with tax authorities as a direct party involved. The aim of the service designated by tax authorities is to partially support and reduce the taxation workload of tax authorities, by examining and guaranteeing the content of returns. This does not mean that the organization would completely replace the function of "survey by taxation office directors", which is stipulated in Article 16-1-1 of the National Tax Procedure Law. However, if the Private Coordination Organization were to have the responsibility of examining and guaranteeing contents of returns, it is expected that positive effects would be seen from actually outsourcing examinations from the tax authorities to the Organization.



Figure 6. Overview of the Private Coordination Organization

4. Summary of Recommendation

As we mentioned at the beginning of this report, measures for diffusing electronic governments have been discussed from a variety of perspectives. However, I do not think that forward-looking improvement measures would be generated by discussions of such problems as "a utilization ratio of less than 1% in spite of an injection of taxpayers' money that has amounted to as high as 2300 billion yen".

As mentioned above, we should pay more attention to the fact that companies with 50 or more employees are incurring a yearly cost of as high as 200 billion yen for administrative procedures related to salary payment reports and year-end adjustments.

Because people are required to submit applications to administrative organizations, companies have half habitually accepted the burden associated with going through administrative procedures. However, needless to say, the utilization ratio of electronic governments will significantly increase if a scheme for drastically reducing corporate burden is created together with the construction of electronic governments.

In our opinion, the important points for developing online services targeted for companies are as follows.

1) One-stop services

It is necessarv to convert traditional procedure-by-procedure online services into one-stop services, so that applicants may be able to collectively go through necessary procedures. At the same time, it is important to review entire procedures and to streamline the process by abandoning or consolidating unnecessary procedures and documents. If it is difficult to provide collective online services, it is not necessary to attach too much importance to provision of all of the services via the Internet; it would be sufficient, if an applicant could complete all necessary procedures by only visiting one contact point. With regard to contact points, we should make efforts, beyond negative effects caused by vertically divided administrative functions, to enable applicants to complete all procedures at any city, town and village office, or to go through all procedures at any post office, convenience store, bank counter, etc., by means of outsourcing and market tests.

2) Utilization of service know-how of the private sector

All electronic application / notification services, including interfaces for reception, are now provided by administrative organizations. However, from the very start, the private sector has superiority in service mindedness and know-how, which should be effectively utilized. Another problem is that the variety of accounting software and other business support software that is used in business offices is not linked to electronic applications / notifications.

Administrative organizations should release specifications for the data formats necessary to receive electronic applications and notifications and should leave the areas related to direct operation by users to private web services and packaged software. We can expect that the measures will not only provide easier-to-use services due to the consequent inter-company competition but also reduce costs that administrative organizations have to bear as well as produce spillover economic effects in the software and the Internet-related industries.

Such a scheme for reducing the burden on private companies can be realized not by administrative organizations but by self-reliant efforts in the private sector.

At the same time, experts play a very important role in promoting self-reliant efforts in the private sector. I think that the "Private Coordination Organization" as a coordinator between corporate and administrative systems needs to play a central role in constructing an innovative scheme to reduce the related burden and that administrative organizations need to release contact point interfaces for electronic applications so that administrative systems may be directly linked to corporate ones.

Next year, we will design a scenario for saving corporate labor in administrative procedures and will conduct research studies on a scheme for efficient utilization of electronic applications provided by administrative organizations. Technological Infrastructure Development Group



Overview of Activities

(1) Background

The Information Sharing Technology Promotion WG was established as part of the FY2005 RFID tag system development research project to streamline the use of energy (project to establish platform for sharing information between companies) and performed activities.

In order to achieve seamless information sharing throughout a product life cycle through the use of RFID tags, the FY 2005 RFID tag system development research project to streamline the use of energy (project to establish platform for sharing information between companies) aims to establish platform technology for unifying expressions of information toward achieving a common understanding of product information that is exchanged across business sectors and between businesses internationally. At the same time, the project's objective is to establish an environment to resolve common cross-sector problems and social problems associated with the introduction and application of RFID tags, so as to improve the social acceptability of RFID tags.

To achieve product traceability and electronic commerce through the use of RFID tags, it is essential not only to have the mounting technology of the RFID tags but also to establish a platform to share information between companies at the inter-industry and international level, so as to link the "object" information captured by a RFID tag to the related attribute information (product information, etc.) and transaction information (commercial distribution, object distribution and money distribution).

The technology that is anticipated to achieve this platform for sharing information between businesses is the Internet and XML (Extensible Markup Language). To achieve information sharing across business sectors and national borders, a mechanism must be established to ensure that information can be transmitted to any destination in the world over the Internet, and XML must be used to describe a common meaning of information so that any company in the world can understanding that information.

What has been proposed as an international standard for this mechanism is ebXML (electronic business implementation system based on XML). ebXML is being developed as a common platform where the Internet and XML technology in particular are used to allow global electronic business without the barriers presented by such factors as nations, business types, business conditions, company size and degree of computerization. The establishment of a mechanism that permits a common understanding of the meaning of data elements, the expression methods and other concepts is also needed to achieve an environment where all companies involved in a product life cycle can share the required information.



Figure 1. WGs Related to the Platform for Sharing Information between Businesses

(2) Objectives

The objectives of the Information Sharing Technology Promotion WG (see Figure 1) are to promote EDI for the purposes of product traceability and electronic commerce, based on ebXML, and to establish an information definition dictionary for sharing information between businesses. In order to ensure the achievement of information sharing between businesses in Japan and foreign countries, particularly countries in Asian regions, the WG researched and encouraged the use of a business requirement model for the implementation of EDI for product life cycles. The business requirement model incorporates the needs of domestic business sectors and is based on integrated methods compatible with the international standard ebXML, which was established by UN/CEFACT, a specialized institution of the United Nations.

The objective was to assist the implementation of EDI related to product life cycles in business sectors, by defining the data elements that can be used across business types based on the studied business requirement model and by establishing a federated registry and repository (R&R) that permits common references to those data elements.

(3) Structure

While referring to the analysis of the product life cycle surveys conducted by the "RFID Tag/Traceability Promotion WG" and the analysis of the results of the FY 2004 RFID tag field trials, this WG conducted a study of a business requirement model for a product life cycle and a model for data that should be shared, both of which that incorporate the needs of domestic business sectors. The WG also studied methods for promoting the use of the model, including the use of the registry and repository established in FY 2004. In addition, when studying the model for data that should be shared, the WG paid attention to maintaining consistency between the data elements stored on RFID tags and the data elements that are used in corporate applications and EDI, while coordinating activities with the "International RFID Tag Utilization Promotion WG", which studies the sharing of data elements stored on RFID tags.

Before carrying out these activities, this WG established task forces under the WG to study data models based on the business requirement model for a product life cycle and to study federation of the model's registry and repository for sharing information across business sectors and national borders, as well as the related operation management procedures. (See Figure 2.)

Activity Results

(1) Data Elements Standardization Task Force

In FY 2004, this Task Force viewed product traceability using RFID tags as part of commercial transactions (for example, SCM) and established data elements, mainly for the existing electronic commerce model.

In this FY, the Task Group expanded the area for the use of RFID tags to include the overall product life cycle (including, for example, maintenance and recycling activities) and established data elements from the perspective of the products that should be traced.

There are several ways to view products when analyzing data elements.

For example, data to identify products in the business objective includes:

- Identification of products manufactured based on the same specifications (item), products created in the same manufacturing process (lot), and individual products (individual articles)
- 2) Identification of single products, packaged products and products packaged at a number of levels
- 3) Identification of completed products, components at a number of levels and related raw materials.

In addition, data related to the attributes of a product include





static attributes possessed by the product (product specifications for example) and dynamic attributes that change by the movement or use of the product (location or damage condition for example).

Furthermore, when a product is subject to a transaction, data on the handling of the product becomes associated with the product, as a result of transaction events (order placement, shipment, delivery, etc.) and transaction participants (seller, purchaser, shipper, etc.).

Data elements that should be shared must be defined in line with the objective of the business operations in which they are handled, based on a clearly defined viewpoint.

The Task Force went through the following steps to bring together the establishment of data elements and the methods for establishing data elements. (See Figure 3.)

- Using the data items analyzed in FY 2004 and the core product information components advanced by UN/CEFACT as a springboard for discussion, the Task Force carried out comparisons with the data elements used currently in the domestic business sectors and then organized a method for putting together data related to products.
- 2) After studying the business requirements specifications based on the results of the FY 2004 RFID tag field trials, the Task Force established data elements that can be shared within Japan.
- 3) Based on the product life cycle survey conducted by the "RFID Tag/Traceability Promotion WG" in FY 2005, the Task Force established data elements that can be shared within Japan.

Furthermore, in the preparation of each information sharing item, the Task Group took into consideration consistency with data elements stored in RFID tags, as studied by the "International RFID Tag Utilization Promotion WG".

(2) Database Federation POC Task Force

In FY 2004, for constructing the electronic commerce system, this Task Force built a registry and repository (R&R) that can reference reusable data elements and XML schemas.

In FY 2005, the Task Force carried out POC (Proof of Concept)

in linking the R&R established in FY 2004 with the R&R for the Asia region, with the objective of achieving information sharing with Asian countries.

R&R federation refers to a mechanism by which a user of a certain R&R accesses data of a separate R&R that is connected to the relevant R&R, to permit the user to make inquiries and download data.

Problems in Achieving R&R Federation (see Figure 4)

- The service interface of a different R&R to which a federation is being attempted must have inter-connectivity with the other R&R. In other words, it must be compatibility in terms of the communication method and security functions.
- 2) Even if inter-connectivity of the service interface is assured, it is not possible to locate the target data if the definition method or categorization method for the object differs in each R&R. Therefore, adjustments must be made to the object definition method and categorization methods or the mapping method for semantic information must be defined.
- 3) When different R&R federate together, it is necessary to know, with respect to 1) and 2) above, what type of service interface each R&R provides, what type of information (object) is stored in the R&R and how is that stored information categorized. The definition information (administration information) for that purpose must be standardized.

Database Federation POC Task Force

- 1) With respect to the above three issues, the Task Force studied R&R link methods, adopted methods in the R&R Federation Project in the Asia region, and conducted field trials.
- 2) The Task Force evaluated and analyzed the field trials in the R&R Federation Project in the Asia region and prepared a plan to disclose the federated R&R.



Figure 3. Product Information in Product Life Cycle



Figure 4. Linkage of Registry and Repository (R&R)

Future Expectations (Summary)

In the activities carried out up to FY 2005, the WG established a definition method for data elements that can be shared, based on business processes, and, based on that method, defined shared data elements usable in a broad range of business areas (product information, for example). In addition, the WG prepared a registry and repository system so common reference of the relevant data elements is possible not only for domestic business in Japan but also for global business. The WG also conducted POC of the federation of the relevant registry and repository systems in the Asia region, and completed the establishment of a platform that allows the common reference of shared data elements and data elements for specific business regions, across both industry and national borders.

In the future, the WG will encourage the definition of business data elements in each business area in the domestic business sectors, based on the established definition method for data elements. The WG will make efforts so that these defined data elements are registered in the registry and repository so that they can be used in electronic commerce between businesses, both domestically and internationally.

Table 1. History of Activities of the "Information Sharing Technology Promotion WG"

| Date | Activity Description | Period | |
|-------------------------------|--|---|--|
| June 20, 2005 (Monday) | ebXML Asia Committee meeting (Hong Kong) | (June 20 to 24) | |
| August 1, 2005 (Monday) | UN/CEFACT-TBG17 meeting (Vienna) | (August 1 to 5) | |
| August 24, 2005 (Wednesday) | First meeting of the Information Sharing Technology Promotion WG | | |
| | (1) International meeting report, (2) Agreement on WG activities, (3) Launch of Data Item Standardization Task Force and Database Federation POC Task Force | | |
| September 1, 2005 (Thursday) | ebXML Asia Committee- R&R Federation Task Group Meeting (Seoul) | (September 1 to 3) | |
| September 22, 2005 (Thursday) | Second meeting of the Information Sharing Technology Promotion WG | | |
| | (1) Organization of ebXML diffusion concept, (2) Registry and repository d Problems with sharing information in a product life cycle, (4) Plan the activ of registry and repository | isclosure scenario, (3) ities for Federation POC | |
| October 7, 2005 (Friday) | Database Federation POC TF1-1, 2 | (October 7 to 8) | |
| October 17, 2005 (Monday) | Data Item Standardization TF2-1 | | |
| November 8, 2005 (Tuesday) | Database Federation POC TF1-3 | | |
| November 17, 2005 (Thursday) | Third meeting of the Information Sharing Technology Promotion WG | | |
| | (1) Translating the UN/CEFACT shared data elements into Japanese, (2) information model proposed by committee, (3) Consideration of registry approximation and the proposed by committee. | Review of product oplication cases | |
| November 22, 2005 (Tuesday) | ebXML Asia Committee meeting (Taipei) | (November 22 to 25) | |
| December 2, 2005 (Friday) | Database Federation POC TF1-4 | | |
| December 15, 2005 (Thursday) | Data Item Standardization TF2-2 | | |
| February 2, 2006 (Thursday) | Data Item Standardization TF2-3 | | |
| February 3, 2006 (Friday) | Database Federation POC TF1-5 | | |
| February 13, 2006 (Monday) | UN/CEFACT-TBG17 Meeting (Washington) | (February 13 to 17) | |
| February 21, 2006 (Tuesday) | Fourth meeting of the Information Sharing Technology Promotion WG | | |
| | (1) Final review of product information model, (2) Summary of RRF POC | | |
| March 9, 2006 (Thursday) | Fifth meeting of the Information Sharing Technology Promotion WG | | |
| | (1) Review of report draft, (2) Planning of activities for next fiscal year | | |
| Note: | TFx-n: x (group no.), n (number representing position in the series of meeti | ngs (first, second, etc.)) | |

 TFx-n: x (group no.), n (number representing position in the series of meetings (first, second, etc.) RRF: Registry and Repository Federation Technological Infrastructure Development Group

Next Generation EDI (ebXML) Promotion WG

Overview of Activities

(1) Background

With regard to the ebXML standards started by UN/CEFACT and OASIS (Organization for the Advancement of Structured Information Standards), major standards were established by the end of FY 2004 and currently it is safe to say that they can be sufficiently implemented to improve business processes running between businesses. However, although steady progress is being made in the adoption of ebXML in the United States, Europe and Asian regions based on the relevant standards, the anticipated progress has not been seen in the introduction and promotion of ebXML in Japanese industries. If no actions are taken, efforts to establish a platform for sharing information between businesses based on international standards will fall behind schedule in Japanese business sectors, making it difficult for Japanese companies to gain a leadership in the global business arena in particular.

(2) Objectives

The objective of this WG is to promote the spread of the EDI international standard ebXML in Japanese business sectors and represent Japanese business sectors in promoting the establishment of relevant standards through UN/CEFACT and OASIS.

In FY 2005, in consideration of a broader penetration and diffusion, the WG established specifications for PC client support functions in the ebXML messaging service in order to create an environment where ebXML can be introduced even by small and medium sized companies. The WG took efforts to ensure consistency between the domestic organizations that require similar technology and standards and put together a related proposal, which it submitted to OASIS.

Activity Results

As specifications for EDI, mainly that which uses the Internet, have been standardized, EDI has become increasingly popular with large businesses and medium-sized businesses. However, EDI penetration in small and their group companies lags behind. A key to increasing diffusion of EDI in small and medium sized businesses is the development and diffusion of client-based systems using personal computers. For this purpose, it is essential that telecommunications and systems using pull messaging are standardized. Field trials of a system using pull messaging are being performed by the Distribution Systems Hisanao Sugamata, Masato Tamori, Research Directors, Next Generation Electronic Commerce Promotion Council of Japan

WG

Research Institute (GS1 Japan), and the Japan Electronics and Information Technology Industries Association (JEITA) and the Common XML/EDI Practice Promotion Council (COXEC) are carrying out activities to attempt to develop and spread the use of such systems. The Next Generation EDI (ebXML) WG has created specifications for pull messaging, based on requirements obtained from the above activities, has proposed those specifications to OASIS, an international standards body, and has participated in the specification development activities. As a result, this function is to be reviewed for standardization in OASIS as ebXML Messaging Services (ebMS) 3.0 specifications (Technical Committee (TC) draft).

(1) Advantages of Pull Messaging

The conventional B2B-EDI system requires installation of a server and a messaging system that uses that server, such as ebMS2.0. This messaging system is a push system where EDI data is sent from the sender to the recipient. It has superb rapid communication qualities, in that EDI data can be received at the same time as the occurrence of an event. However, since the system must always be on standby for receiving data, a server must be installed and kept running 24 hours a day, a constant Internet connection must be maintained, a static IP address must be acquired, and a Firewall or other strong security function is needed.

Generally, it is difficult for small and medium sized businesses to meet the operational requirements related to installing this kind of server system. This problem can be resolved by having the recipient use a personal computer as a client to go and obtain the EDI data from the sender's server computer. System used in this situation is called pull messaging (see Figure 1).

Figure 1 shows an example where the client on the left hand side receives a HTTP-based message.

- When the server on the right hand side sends a message to the client, the message is not sent directly, but is retained until the recipient comes to get it.
- 2) When the client wants to receive messages, it makes an inquiry as to whether there are any messages for the client in the server (Pull Request). Normally they are sent by a HTTP request.
- 3) When the server receives a Pull Request from a client, it checks whether there are any messages to that client stored on the server. If there are any messages, they are placed on a HTTP response and sent.



MSH: Messaging Service Handler

Figure 1. Fundamental Principle of Pull Messaging

Pull messaging allows the delivery of a message without the message being sent from the server to the client. Accordingly, although pull messaging lacks the quality of providing immediate communication of an event, the client only needs to be launched when processing messages, and therefore 24 hour operation is not needed, dialup connections may be used for connecting to the Internet, and static IP addresses are not necessary. By using a client system, small and medium sized business requirements can be met and inexpensive installation and easy maintenance of a B2B-EDI system are achieved.

(2) Function Specifications for Pull Messaging

To actually use pull messaging, the following is required in addition to the basic message transmission function mentioned above.

- 1) Simple authentication when connecting from a client
- 2) Operating procedures to acquire a message on a client
- Message access priority control so that urgent correction messages for purchase/order slips are given higher priority than ordinary messages
- 4) It is also preferred that there is reliable message function support that is not based on an application and is used for recovery processing when a message is resent or the system shut down.

Issue 1) can be resolved with simple authentication. As for the issue 2), the operating procedures could be set in the application. For example, the recipient connects to the server either a set number of times each day or at fixed intervals to request the transmission of messages. If there are any messages, they are sent as a return message for the request. Issue 3) could be resolved by providing a message box function for each purpose, as a pull messaging function. To resolve the issue 4), the system could be bound to existing reliable messaging.

The above requirements have been compiled into a proposal submitted to OASIS as technical specifications. As of March 2006, standardization in that regard is under review.

Future Expectations (Summary)

To perform business operations that go between businesses, information must be exchanged continually in a properly timed manner. The messaging service that serves as the basis for that purpose must be improved and extensively used. This is the first step in realizing information sharing between businesses over an open network. JEITA, GS1 Japan and other organizations have already decided to adopt these specifications. The future development of systems using these specifications is expected to contribute to the widespread use of EDI systems at a wide range of businesses, including small and medium sized businesses.

| | Table 1. History | y of Activities of the ' | "Next Generation EDI | (ebXML) WG" |
|--|------------------|--------------------------|----------------------|-------------|
|--|------------------|--------------------------|----------------------|-------------|

| Date | Activity Description | | |
|-----------------------------|---|--|--|
| September 6, 2005 (Tuesday) | First meeting of the Next Generation EDI (ebXML) Promotion WG | | |
| | (1) Agreement on activities, (2) Evaluation of FY 2004 ebXML guidebook | | |
| October 13, 2005 (Thursday) | Second meeting of the Next Generation EDI (ebXML) Promotion WG | | |
| | (1) Introduction of cases where ebXML has been introduced,(2) Evaluation of pull messaging specifications in JEITA | | |
| November 15, 2005 (Tuesday) | Third meeting of the Next Generation EDI (ebXML) Promotion WG | | |
| | Evaluation and proposals for working draft for ebMS V3 | | |
| December 16, 2005 (Friday) | Fourth meeting of the Next Generation EDI (ebXML) Promotion WG | | |
| | Evaluation of working revised version of ebMS V3 | | |
| March 20, 2006 (Monday) | Fifth meeting of the Next Generation EDI (ebXML) Promotion WG | | |
| | Evaluation of working review status of ebMS V3 | | |





Overview of Activities

(1) Background

In FY 2004, electronic commerce (EC) in Japan grew to 102 trillion yen (a 33% gain over the previous year) in the area of business-to-business (B2B) electronic commerce. However, a variety of problems have surfaced.

Many companies placing orders have set up separate Web-EDI systems as procurement B2B systems. Because of the separate specifications, many companies receiving orders (such as small and medium sized companies) are having difficulty connecting to the systems. In addition, although industry-specific B2B standards have been established and implemented, the absence of cross-industry transaction standards and the need to handle such transactions on a case-by-case basis are preventing efficient commercial transactions.

The Practical B2B-EC Framework Research and Promotion WG conducts research on a practical B2B framework to resolve the variety of problems existing in current B2B systems, based on existing B2B standards and Internet technology. The WG tries to support activities for the diffusion of that framework as well.

(2) Activities

To ascertain the current circumstances of B2B-EC, the WG conducted an interview survey of order recipients, where there is a particular concern about problems, and performed a comparative study of the various industry EDI standards that have been introduced.

Based on these studies, the WG established a trial project for the B2B-EC framework from the viewpoint of users.

Activity Results

(1) Problems Affecting B2B EC Promotion

Several factors that are preventing B2B EC from expanding in Japan as anticipated were identified in this WG's studies and analysis efforts. These problems are summarized below.

1) The EDI interface differs for each transaction counterparty.

There are the following problems in this regard:

- Means of communication differ.
- There is a lack of compatibility in the EDI support software
- Screen operations differ.
- Data elements differ.
- It is necessary to connect to VAN and ASP that are different for each transaction counterparty.
- As a result, the cost is incurred to make the required connection.
- As a result, log-in procedures (ID/password input) are needed each time.

Table 1. History of the Activities of the "Practical B2B-EC Framework Research and Promotion WG"

| Date | Activity Description |
|------------------------------|--|
| August 9, 2005 (Tuesday) | First meeting of the Practical B2B-EC Framework Research and Promotion WG |
| | (1) Agreement on activity details, (2) Overview of B2B EC market size survey |
| October 4, 2005 (Tuesday) | Second meeting of the Practical B2B-EC Framework Research and Promotion WG |
| | (1) Introduction of standardization organizations, (2) Results of surveys of industry associations and businesses |
| November 6, 2005 (Sunday) | Third meeting of the Practical B2B-EC Framework Research and Promotion WG |
| | (1) IT support team activities, (2) Results of interview survey of industry associations and businesses, (3) Current circumstances of EDI at small and medium sized companies |
| January 13, 2006 (Friday) | Fourth meeting of the Practical B2B-EC Framework Research and Promotion WG |
| | (1) Introduction of IT business text book, (2) B2B EC problem analysis and B2B EC framework |
| February 1, 2006 (Wednesday) | TF |
| | (1) B2B EC framework objectives and scope, (2) Framework scheme, (3) EDI standard elements |
| March 3, 2006 (Friday) | Fifth meeting of the Practical B2B-EC Framework Research and Promotion WG |
| | Review of Report draft |

2) Interfacing with internal systems is difficult.

In HTML-based Web-EDI systems that have recently begun to become relatively popular, and in e-mail-based EDI systems with attached files, human labor is involved before there is any interfacing with internal systems.

3) Internal business processes for EDI have not been automated.

When order information is received in EDI, the order placement processes to process that information (production arrangements, backlog management, etc.) are not automated and as a result the EDI information is printed out and processed by manual processes.

4) Approaches to industry standards are different.

The EDI interfaces that has been agreed on in each industry (see 1) above) are different and are not compatible with the industry standard of the transaction counterparty.

The above problems preventing the promotion of B2B EC can be said to be the result of the poor handling of the following two factors.

- Preparation of B2B EC standards
- Preparation of B2B EC solutions (services and software)

The poor handling of these two points is based on differences in how EDI standard elements were approached, with focus on standardization and the development of solutions. The currently recognized EDI standards and EDI solutions rely on EDI layers that were created 17 years ago. With the spread of the Internet, the increasing sophistication and widespread use of personal computers, and significant changes in technology such as XML and security functions, the standardization schemes in each industry were established based on the technological environment at that time. Also, software vendors and service providers have been providing all sorts of new available technologies. These issues have probably brought about the current chaotic environment.

(2) Framework from User Perspectives

This WG attempted to develop a framework for using B2B-EC from user perspectives, based on an examination and analysis of the current circumstances. (See Figure 1).

1) Operation Viewpoint

The daily operations for B2B-EC can be carried out in the following way.

- I Preparations for information exchange are made according to an agreed-upon process.
- II Data is prepared.
- III Data is converted to an agreed-upon format.
- IV Preparations are made for data transfers, in accordance with an agreed-upon operation procedure.
- V Data is transmitted.
- 2) System Introduction Viewpoint

To ensure that the daily operations are possible, the models and templates necessary in each phase of operation must be provided.

- I Business process model
- II Data model
- III Data conversion model
- IV Operation procedure definition template
- V Message header template
- 3) Support for Standards

The models and templates necessary in the system introduction are supported by standards that specify the respective definition methods.

Summary

To perform business processes that go between businesses, computers involved must connect over an agreed-upon network and business data from applications must be exchanged between the businesses over that network. To make this a reality, standards must be specified, models based on the standards must be defined, and a framework for the operation of a B2B-EC system following those models must be established. Also, many interoperable solutions based on that framework must be provided. These efforts will together promote B2B EC in a broad range of businesses, including small and medium sized companies.



Figure 1. B2B-EC Framework Viewpoints

International Relations Group

Kojun Matsumoto, Haruo Muto, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

International Relations

The International Relations Group carries out activities with the objectives of ensuring International collaboration and communication regarding EC and promoting international EC. In FY 2005, the International Relations Group advanced measures to build a related coordinated system in Asia. At the same time, the International Relations Group carried out survey activities, specifically a "survey on condition of overseas EC promotion", and a "survey on the current condition of the environment surrounding EC in China and the latest trends in the EC market". An overview of these activities is provided below.

Overview of Activities

1. Collaboration with Overseas Organizations Promoting EC

The collaborative activities with overseas EC-related organizations this fiscal year began with the cooperative activities of the three EC-related associations in Japan, China and South Korea in April.

Following the progress made by the collaboration between Japan, China and South Korea in the previous fiscal year, the International Relations Group took up a proposal by the China Electronic Commerce Association (CECA), and participated, together with the Korea CALS/EC Association (KCALS), in the 8th China International EC Conference, which was held in

Table 1. History of the "Activities of the International Relations Group"

| Date | Host Country (City) | Activity Description |
|------------------|------------------------|---|
| April 2005 | China (Beijing) | 8th China International EC Conference Trilateral Meeting of the Electronic Commerce Associations of Japan, China and South Korea - Memorandum of Understanding on EC diffusion promotion concluded. |
| May 2005 | South Korea (Seoul) | Japan, China and South Korea RFID/Traceability Forum 2005 |
| July 2005 | China (Beijing) | Experience Exchange Forum on the Laws concerning e-Signatures - Japan, China and Korea Electronic Commerce Policy and Law Seminar |
| October 2005 | Japan (Hakodate) | Japan-Korea EC Promotion Council Workshop - Report on status of RFID field trials - Japan-Korea traceability promotion - e-government |
| November 2005 | South Korea (Seoul) | e-Biz Expo 2005 (Further Promotion of EC) - Conference speeches - ECOM booth - Visiting RFID tag related companies |
| February 2006 | Japan (Tokyo) | ECOM Seminar - Latest overseas trends (EC trends, e-government, authentication) |

Beijing, China in April. At this Conference, ECOM gave a congratulatory speech. On the day after the conference, a meeting was held to advance future cooperative activities of the electronic commerce associations of Japan, China and South Korea. In this meeting, a memorandum of understanding was concluded to assure the performance of the future cooperative activities of the three organizations. In May, the Japan, China and South Korea RFID/Traceability Forum was held in Seoul, South Korea. ECOM participated in this Forum together with CECA. ECOM provided information on the progress of RFID efforts in Japan with lectures given by ECOM Research Directors and by lecturers dispatched from Japan. Following the enactment of a law concerning electronic signatures in China in April 2005, Experience Exchange Forum on the Law concerning e-Signature was co-hosted in Beijing, China, in July by the three EC organizations, based on the concluded memorandum of understanding. In this meeting, ECOM sent Japanese lecturers to give speeches on the topic of long-term signature storage format, and to report on the latest developments in Japan.

In September, the International Relations Group received a research group from South Korea investigating advanced cases of RFID application and other RFID efforts. A wide range of cooperative activities were carried out, including a seminar reporting the RFID field trials in Japan, an inspection of actual locations where RFID systems have been introduced and inspections of the latest information through exhibits.

In October, a meeting of the "Japan-Korea EC Promotion Council", a major event in the collaborative activities between Japan and South Korea, was held in Hakodate, Japan. In the 13th workshop of the Council, a variety of issues were discussed, including Japan-Korea traceability promotion, e-government, and an announcement of proposals for collaborative activities, such as those in the field of authentication and notarization. A report on the Japan-Korea collaborative project in electronic components was also given. ECOM also participated in activities to support the holding of the eighth Japan-Korea EC Policy Council and the fifth Japan-Korea EC Law Expert Round Table, which were held in October as well. In November, ECOM participated in e-Biz Expo 2005, which was held in Seoul, South Korea. At the Expo, lecturers sent from ECOM gave lectures on such topics as the latest RFID trends, case examples of the use of IC tags, and the status of the EC market in Japan. In addition, an ECOM booth was put on display at an exhibition held around the same time in order to provide information on ECOM and Japan-Korea collaborative activities. In addition to participating in these events, ECOM also, with the cooperation of KCALS, was able to visit Korean RFID-related companies and observe cases of field trials.



Figure 1. Global EC Market and Internet Population

With regard to collaboration efforts with Taiwan, ECOM carried out collaborative activities for the Fifth Joint Meeting of the Japan-Taiwan EC Promotion Committee, held in Taipei, Taiwan in December. In FY 2006, the Committee plans to hold another meeting in Japan to continue collaborative activities between Japan and Taiwan.

ECOM plans to continue to maintain close cooperation with overseas organizations in the coming fiscal year.

2. Survey of the Current Status of Overseas EC Promotion

(1) Global EC Market Trends

Figure 1 shows trend data on the global EC market and the Internet population, released by IDC, a US research company. The EC market is projected to grow from \$936 billion in 2002 to \$7.128 trillion dollars in 2007, a 7.6 fold increase. By comparison, Internet users in 2002 reached 702 million and the estimated number of Internet users in 2007 is 1.076 billion, an increase of only a little more than 1.5 fold over the same period. According to Global Industry Analysts (hereafter, GIA), the EC market is projected to reach \$8.7816 trillion in 2007. (See Figure 2.)

These estimates project the market to reach anywhere from roughly \$7 to \$9 trillion, 8 or 9 fold increase from the 2002 market size.

(2) EC Market Trends in the United States

According to GIA, the overall size of the United States EC market in 2003 was \$733.4 billion and it is estimated to reach \$6.0589 trillion in 2008. (See Figure 3.)

On the other hand, according to the "2003 EC Multi-Sector Report" released by The United States Census Bureau, the



United States Department of Commerce in May 2005, the total value of goods and services traded by EC in the United States reached \$1.679 trillion in 2003, an 11.2% increase from \$1.51 trillion in 2002. A breakdown of the 2003 market shows that EC in the manufacturing industry reached \$843 billion, accounting for 50.2% of the total amount. The next largest segment was the wholesale industry at \$730 billion (43.5%). The retail industry amounted to \$56 billion (3.3%) and the service industry reached \$50 billion (3.0%). (See Figure 4.)



Figure 2. Global EC Market Size Trends and Projections



Figure 3. US EC Market Size Trends and Projections (2003 to 2008)



Source: Census Bureau of the Department of Commerce

Figure 4. US EC Market Size (2002 and 2003)

(3) EC Market Trends in Asia

The EC market in the Asia/Pacific region is projected to show significant growth in the future. According to GIA, the total size of the EC market in the Asia/Pacific region (including Japan) is expected to grow from \$342.7 billion in 2003 to \$2.3301 trillion in 2008. (See Figure 5). The compound annual growth rate (CAGR) over this period is 44.8%. According to

GIA data mentioned in (1) above, the global EC market is estimated to be \$1.7021 trillion in 2003 and \$13.3865 trillion in 2008. This means that the share of the total global market held by the Asia/Pacific region (including Japan) will drop from 20.1% in 2003 to 17.4% in 2008. This is due to the fact that the EC growth rate in Japan is estimated to be lower than other regions.



Figure 5. Size of the Entire EC Market in the Asia/Pacific Region (Including Japan) (2003 to 2008)

(4) EC Market Trends in Europe

According to GIA, in the Western Europe region, the total size of the EC market, as a sum of the B2B and B2C markets, is estimated to be \$516.2 billion (381.5 billion euros according to the dollar exchange rate at the end of 2004) in 2003 and \$4.0855 trillion (3.0192 trillion euros according to the same exchange rate) in 2008. (See Figure 6.) On the other hand, according to EITO, a research organization that specializes in European ICT market research, the EC market in Western Europe is expected to rise from 680 billion euros in 2004 to 2.217 trillion euros in 2008. (See Figure 7.) If we compare both estimates, we see that the market is expected to see a three to five fold growth in 2008 from the 2004 figures. Future trends and developments will likely continue to change the growth rate.



Figure 6. EC Market Size Trends in Western Europe (2003 to 2008)



Source: EITO (2005)

Figure 7. EC Market Size in Western Europe (2004 and 2008)

3. Survey on the Latest EC Trends in China

Beginning with Yahoo's \$1 billion investment in Alibaba.com in 2005, there have been a number of noticeable foreign capital investments in China's EC market. Supporting this EC market is a large number of Internet subscribers in China, which leapt into the second highest position in the world in 2002 in terms of the number of Internet subscribers. Since that time, the number of subscribers in China has continued to grow at an outstanding annual rate of roughly 23%, and is estimated to have reached 110 million subscribers at the end of 2005. (See Table 2.)

The market potential offered by the Chinese EC market has begun to attract considerable attention, even from foreign parties. This section introduces the trends seen in that market.

| Country | Number of Intern | et Users (Million) | CARG | 2005 | Population at End of | Internet Penetration |
|----------------|------------------|--------------------|---------|--------------|----------------------|----------------------|
| Country | 2002 | End of 2005 | (02-05) | Global Share | 2005 (Million) | Rate |
| United States | 162.1 | 210.1 | 9.0% | 21% | 296 | 71% |
| China | 59.1 | 112.6 | 23.0% | 11% | 1,296 | 8% |
| Japan | 53.0 | 79.8 | 14.6% | 8% | 128 | 62% |
| Germany | 34.5 | 48.5 | 12.0% | 5% | 83 | 58% |
| United Kingdom | 32.0 | 37.4 | 5.3% | 4% | 60 | 62% |
| South Korea | 26.5 | 32.3 | 6.8% | 3% | 50 | 65% |
| Entire World | 609.4 | 999.3 | 17.9% | 100% | 6,420 | 16% |

Table 2. Number of Internet Users in Major Nations in the World

Source: www.Internetworldstats.com (September 30, 2005)

(1) Size of EC and B2B Markets in China

The estimated size of the EC market in China differs according to research firm. However, a leading research firm in Shanghai, iResearch, estimates that the market, which was 54.5 billion RMB in 2001, will continue to expand at an annual growth rate of 78%, surpassing the average global growth rate by almost 15 percentage points, reaching 1.7373 trillion RMB in 2007. The B2B market accounts for at least 97% of that amount. Although the B2B market's high share of the total market is the same as trends seen globally (B2B accounted for 95% of the total market in Japan in FY 2004), the annual average growth rate in China is estimated to exceed global average values, not only in terms of the total EC market, but also in terms of the B2B and B2C + C2C markets. However, the percentage of the total market held by the B2B market is estimated to gradually decline through the end of 2007, to 97.1%.

(2) B2C Market Size and Major Trends

iResearch estimates that the B2C (including auctions and travel agency businesses) and the C2C market will grow to 50.6 billion RMB (2.9% of the total EC market) in 2007. Of this amount, online shopping of products using the Internet (excluding digital content, such as games, and services such as travel reservations) is projected to reach 29.6 billion RMB in 2007, meaning that the compound annual rate of growth (CARG) for the six period starting in 2001 will reach 144.1%. (See Table 3.)

| Entire World (\$1 billion) | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | CARG |
|----------------------------|------|------|-------|-------|-------|-------|--------|--------|
| Total | 450 | 800 | 1,600 | 2,700 | 4,300 | 6,200 | 8,800 | 64% |
| B2B | 440 | 760 | 1,500 | 2,500 | 4,000 | 5,800 | 8,300 | 63% |
| B2C + C2C | 10 | 40 | 100 | 200 | 300 | 400 | 500 | 92% |
| B2B Share (%) | 97.8 | 95.0 | 93.8 | 92.6 | 93.0 | 93.5 | 94.3 | - |
| China (100 million RMB) | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | CARG |
| Total | 545 | 775 | 1,413 | 3,239 | 5,291 | 9,957 | 17,373 | 78% |
| B2B | 540 | 760 | 1,385 | 3,160 | 5,137 | 9,667 | 16,867 | 77% |
| B2C + C2C | 5 | 15 | 28 | 79 | 154 | 290 | 506 | 116% |
| (Online shopping) | 1.4 | 6.4 | 17.0 | 45.0 | 87.6 | 164 | 296 | 144.1% |
| B2B Share (%) | 99.1 | 98.1 | 98.0 | 97.6 | 97.1 | 97.1 | 97.1 | - |

Table 3. Changes in the Global Market and Chinese B2B Market Share from 2001 to 2007

iResearch estimates (2005)

The 2004 online shopping market (4.5 billion RMB) can be separated by revenue earned. The largest area was IT products (personal computers, etc.) with a revenue of 2.4 billion RMB, accounting for 53.3% of the entire amount. (See Figure 8.) The high unit price of IT products accounts for its outstanding revenue. On the other hand, a look at the types of products purchased shows that the main items were books, music, video and household goods, such as clothes. (See Figure 9.) One reason that these products are estimated to account for a central portion of the B2C market is that there is also a large number of online shops and malls that offer books, music, video, IT

products and gift products. According to a report released in December 2004 by Analysis International, a Chinese research firm, in 2004, 72% of persons who have had experience in online shopping in China are male and 81% of those persons are under the age of 30. The skew toward young males in the current population of online shoppers is a reason for the central role that books and IT products play in the Chinese B2C market. As the attributes of online shoppers diversifies in the future, the product categories in the B2C market are also expected to change. (See Figure 10.)



Figure 8. Breakdown of Online Shopping Revenue by Product (2004)







Source: Analysis Interrnational (2004)

Figure 10. Attributes of Online Shoppers

(3) Online Shopping Issues

According to a survey by iResearch, the issue that is pointed out most often as a problem with Internet Shopping is the "quality of the product". This is due in part to the universal problem of the inability to actually touch and look at the product when shopping online. In addition, one cannot ignore the problem related to the reliability of the online store itself. The second most common issue with online shopping is the "timely delivery" of the product, indicating that inventory management at warehouses and the establishment of a distribution network are problems in China. Although major cities, such as Beijing and Shanghai, have many services that can deliver ordered products the next day, the current framework of the nation-wide distribution network will likely become an issue in the future when a wide variety of products are ordered over the Internet from a variety of regions. Ranked third is the "product description" and ranked fourth is the "payment method". Online shoppers who felt that "security" was an issue only accounted for 11.8% of the surveyed shoppers, still not that high of a percentage. The number of users that felt "price" was an issue was low because the most typical product traded in the B2C market in China, books, can be sold at discounts. Also, many B2C businesses often sell products at lower prices than over-the-counter prices, because they place priority first on increasing the number of customers rather than increasing profit. (See Figure 11.) Note, however, that this Survey targeted individuals who have had experience online shopping even if only one time. In other surveys that included individuals that have never shopped online, the issue of "security", ranked fifth here, ranked at the top.

To ensure a sound development of EC, it is important to establish a proper environment, including the assurance of transaction security, a credit system, a distribution system, a payment system, and personnel skill development. A law concerning electronic signatures was put into effect in April 2005 in China and efforts to establish a law to protect personal information have been reported since last year. It is hoped that related laws and regulations will be established, both to promote the establishment of an environment supporting EC and to support the sound future development of EC.



Figure 11. Problems Concerning Online Shopping (Multiple Answers Possible)

Public Relations Group

Overview of Activities

ECOM's Public Relations Group uses ECOM seminars (executive special seminars and monthly seminars), ECOM News and ECOM's website to release information to ECOM members and others, mainly regarding the activities of the Next Generation Electronic Commerce Promotion Council of Japan. At the same time, the Public Relations Group presents information on the activities of the various ECOM WGs, through related organizations.

Activity Results (Reports)

(1) ECOM Forum 2005

On Thursday, June 9, 2005, the "ECOM Forum 2005" was held at the Nihon Toshi Center (Hirakawacho, Chiyoda-ku, Tokyo). On that date, a total of more than 400 individuals participated in the forum, mainly from ECOM member companies. In the morning session, Mr. Yukiharu Kodama, Advisor of the Next Generation Electronic Commerce Promotion Council of Japan (ECOM) (President of the JIPDEC) delivered the

opening address on behalf of the organizer. This was followed by keynote speeches with an

emphasis on the future activities of ECOM,

by Mr. Yoichi Kato, the Director of the Information

Economy Division of the Commerce and Information Policy Bureau at the Ministry of Economy, Trade and Industry, and Mr. Junzo Nakajima, the COO of Information & Telecommunication Systems and Corporate Officer of Hitachi, Ltd. In the afternoon session, ECOM's Research Directors gave Kazuhiro Kawashima, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

Public Relations

presentations on the results of activities in FY 2004.

The Forum featured exhibited and distributed catalogues of EC-related products supplied by member companies. An exhibition showing photographs of the seven FY 2004 METI RFID tag field trials was also provided. After the speeches, a social gathering for exchanging information was held. Table 1 shows the speeches and programs in the Forum.

(2) Executive Special Seminars

Executive special seminars are not always related to the technical activities of ECOM, but they do focus on matters that we should know. Three seminars were held for board members. Table 2 shows the dates, topics and lecturers of those seminars. Outlines of the lectures were provided in ECOM News articles to disseminate information to others. At the same time, detailed reports of the lectures were posted on the member web pages of the ECOM website to share the information with ECOM members. In the first executive special meeting, the lecture was titled Global Trends and Japan - Toward a Creation of New Industries. Under this theme, the lecture covered several key topics, including the "global economy", the "light and shadow of the IT revolution", the "drastic changes in the Japanese trade structure" and the "future of Japan". The major themes of the second executive special seminar lecture were a "comparison of the Japanese and US economies" and the "manifestation of invisible (intangible) intellectual property". Key topics under these two themes included the "productivity of major countries in the world", "floundering productivity in Japan", "high profitability of US companies", and "changes in Japanese corporate legal systems". The third seminar featured a lecture

| Table 1. ECOM | Forum 2005 | (Held on | June 9, | 2005) |
|---------------|------------|----------|---------|-------|
| | | • | , | |

| Morning Session | | | | | |
|--|---|--|--|--|--|
| ECOM Forum 2005 - Op | ening Address and Keynote Speeches | | | | |
| Opening Address | | | | | |
| Mr. Yukiharu Koo | dama, Advisor of the Next Generation Electronic Commerce Promotion Council of Japan (ECOM) (President of the JIPDEC) | | | | |
| Keynote Speech 1 "RFID Tag Diffusion Strategies for the Purpose of Industrial R | 1 "RFID Tag Diffusion Strategies for the Purpose of Industrial Restructuring" | | | | |
| Mr. Yoichi Kato, the Director of the Information Economy Division of the Commerce and Information Policy Bureau at the Ministry of Economy, Trade and Industry | | | | | |
| Keynote Speech 2 IT Innovation in a Ubiquitous Information Society – 2010, Yea | e Speech 2 IT Innovation in a Ubiquitous Information Society – 2010, Year of Connection, Expansion and Transformation – | | | | |
| Mr. Junzo Nakajima, the COO of Information & Telecommunication Systems and Corporate Officer of Hitachi, Ltd | | | | | |
| Afternoon Session | | | | | |
| IT Utilization, Traceability and Standardization | e-Government, Individual Authentication, Personal Information Protection, and Private ADR | | | | |
| Latest B2B EC Trends and Topics | State of Efforts to Promote the Use of e-Government in Business Settings | | | | |
| Utilization of REID Tags and Future ECOM Activities | Attribute Authentication and Personal Information Protection | | | | |

| Utilization of RFID Tags and Future ECOM Activities | Attribute Authentication and Personal Information Protection |
|---|---|
| Overview of FY 2004 Activities of the ECOM Traceability Group and Summary of FY 2005 Activities | |
| Information Sharing Technology to Support Product Traceability (ebXML) | Personal Information Protection Act and Response Measures by Entities Handling Personal Information |
| Survey Report on Adaptability of IC Tags (RFID) in ASEAN Countries | Role of Private ADR (Alternative Dispute Resolution) in the EC Market - "Internet Shopping Dispute Cases" |

Table 2. Executive Special Seminars

| Seminar | Date, Time and Location/Lecture Topics and Lecturers | | |
|---------|--|--|--|
| First | September 14, 2005 (Wednesday) 10:00 - 12:00 Tokyo Kaikan, Kasumigaseki | | |
| | Global Trend and Japan – Toward Creation of New Industries Jitsuro Terashima, President of the Mitsui Global Strategic Studies Institute | | |
| Second | January 19, 2006 (Thursday) 15:00 – 17:00 Tokyo Kaikan, Kasumigaseki | | |
| | Pay more attention to the U.S.A! Risaburo Nezu, Senior Managing Director of Fujitsu Research Institute | | |
| Third | March 1, 2006 (Wednesday) 15:30 – 17:00 Tokyo Kaikan, Kasumigaseki | | |
| | Proposals by Infosocionomics Shumpei Kumon, Senior Executive Director, Center for Global Communications, International University of Japan | | |

on "trends in a modernized Japan" and "the coming revolution". The titles of the key topics covered under these themes included "What is Information Society? Three Perspectives", "Capital (Shihon) and Brain Power (Chihon)", "Main Points of Controversy in Macro Infosocionomics: Three Empirical Social Laws" and "S-Shaped Wave, Long wave and Breakthrough in the Modernization of Japan". For more details, see related ECOM News articles and member web pages on the ECOM website.

(3) Monthly Seminars (ECOM Seminars)

As part of activities in FY 2005, 10 monthly seminars were held. One seminar was related to the activities of the RFID Tag/Traceability Special Committee, five seminars were related to the activities of the EC Safety and Security Group, two seminars were related to the activities of the IT Utilization Group, one seminar was related to overseas activities and one seminar was related to EC overall. The basic primary pattern for lectures in ECOM seminars was a lecture concerning policy, a lecture by an expert in the relevant field, and a lecture concerning the activities of ECOM members. In addition, starting this fiscal year, in order to obtain reference information for future ECOM activities, ECOM held an open seminar. In this seminar, ECOM invited former ECOM Research Directors that contributed to past ECOM activities and to the promotion and diffusion of EC, as lecturers, to obtain their unreserved opinions from their current perspectives. Table 3 shows the dates, lecture themes, number of applicants, and number of participants for the ECOM monthly seminars that were held. A total of 1084 individuals attended the FY 2005 ECOM seminars. ECOM gave questionnaires to those that attended the asking seminars. them about the 1) seminar planning/administration, 2) their impressions of the lectures and 3) future themes. 60.7% (658) of the participants responded to the questionnaire. The results of the questionnaire are summarized below.

1) General Opinion of the Seminar Planning and Administration

As an average of all seminars, 19% of the respondents answered that it was "very good", 62% that it was "good", 13% that it was "neither good nor bad" and 1% that it was "uninformative". The seminars that had the highest percentage of participants stating that it was very good was the 5th seminar at 31%, the second seminar at 25% and the seventh seminar at 23%. The seminar on the light and shadow aspects of EC attracted the most interest.

2) Impressions of Lectures

As an average of all seminars, 28% of the respondents stated that the lectures were "very informative", 55% that they were "good", 10% that they were "neither good nor bad", and 2% that they were "uninformative". The lectures that gained an extremely high level of support were the lecture titled "Current Status and Trend in Measures and Policies after the Enforcement of the Act on the Protection of Personal Information - Efforts by Matsushita Electric Industrial Co., Ltd". in the fourth seminar at 52%, the lecture titled "e-Government Special Topic- Introduction of the Electronic Tax Filing System at the Tax Agency in Quebec" in the eighth seminar at 47%, and the lecture titled "Survey of the Current Status and Market Size of EC for FY 2004 - Current Status and Size of the B2C Market" in the second seminar at 45%. This shows that lectures on the activities of ECOM member companies and overseas successful cases were popular.

3) Future Themes

Many respondents wanted topics related to RFID tags, EC safety and security and EC market size. There were also those expressing a desire for seminars on legal issues, such as the SOX law.

| Seminar | Date | Theme | Number of Participants (Members/Total) |
|---------|-------------------|--|--|
| First | May 17, 2005 | Problems with the Law Concerning e-Documents, the Long-Term Storage of Electronic Documents, and the Law Concerning e-Signatures | 159/180 |
| Second | July 12, 2005 | Outline of Survey on the Current Status and Market Size of Electronic Commerce for FY 2004 | 88/105 |
| Third | October 3, 2005 | Trends in the International Standardization of RFID Tags and Diffusion Promotion | 93/160 |
| Fourth | November 7, 2005 | The Latest Trend in the Protection of Personal Information in the Public and Private Sectors | 95/110 |
| Fifth | November 25, 2005 | Efforts for Consumer Protection and Recent Crimes Committed through Computer Networks | 63/89 |
| Sixth | December 2, 2005 | ECOM Open Seminar (report on current EC circumstances and problems as viewed by former Research Directors of ECOM) | 55/103 |
| Seventh | December 16, 2005 | Efforts to Cope with Implementation of e-Document Law – Report on the Result of the Interoperability Test Based on Long-Term Storage Formats | 104/108 |
| Eighth | January 25, 2006 | E-Government Special Topics | 63/76 |
| Ninth | January 27, 2006 | Act on the Protection of Personal Information and Attribute Authentication | 65/72 |
| Tenth | February 9, 2006 | Latest Trends Overseas | 74/81 |

Table 3. Outline of ECOM Seminars

(4) ECOM News

ECOM News were issued 12 times (totaling 151 pages) at the end of every month as an informational publication presenting information on ECOM activities and other topics in a timely manner. Table 4 shows the headlines for ECOM News. Released news articles covered a range of topics, including reports by the planning committee, invitations for applications to be WG members, ECOM seminar reports and WG activity reports. Because an Internet environment was established for the news articles, a larger amount of content was posted than before aiming to ensure that readers could gain a detailed understanding of ECOM activities, whenever and wherever they need to. Also, in special contributions, executive special seminar reports and other areas, matters that must be known in promoting EC were taken up in articles to disseminate information to ECOM members. Furthermore, more detailed disclosures of ECOM activities were made with profiles of ECOM research directors, statements by retiring and newly appointed individuals, letters from the Secretariat, and editing postscripts.

Table 4. Articles Posted in ECOM News Issues

| Issue Date | Major Topics Posted | | |
|--|---|--|--|
| April 2005 | On April 1, 2005, the Next Generation Electronic Commerce Promotion Council of Japan Takes Off! | | |
| (Issue No. 1) | Invitation for Participation in WGs in FY 2005 | | |
| | • Participation in the 8th China International EC Conference and the Holding of a Trilateral Meeting of the Electronic Commerce | | |
| 0. Da sea | Associations of Japan, China and South Korea | | |
| 8 Pages | Announcement of the "ECOM Forum 2005" (to be held on June 9, 2005) | | |
| May 2005 | Report by Planning Committee | | |
| (Issue No. 2) | FY 2005 Activity Plans and Startup of WGs | | |
| 0 Pages | Reports of "First ECOM Seminar 2005" (Held on May 17, 2005) | | |
| 3 Fayes | FY 2004 Activity Reports Now Available! | | |
| June 2005 | "ECOM Forum 2005" Held | | |
| (Issue No. 3) | Report by Planning Committee | | |
| 0 Pages | Survey on the Notice Concerning the Protection of Personal Information on the Website | | |
| 3 Tages | "Japan, China and Korea RFID/Traceability Forum 2005" Held | | |
| July 2005 • Report by Planning Committee | | | |
| (ISSUE NO. 4) | Lectures of the "Second ECOM Seminar 2005" | | |
| 10 Pages | "EPC RFID FORUM" Held | | |
| TOT ages | Report on "Survey of an Electronic Government" in the Province of Quebec, Canada, ISO/TC184/SC4 report | | |
| August 2005 | FY2005 Next Generation ECOM WG Activities Fully Starts! | | |
| (Issue No. 5) | Activities Reports for FY 2004 (Full Text) Released Now!, ECOM Website Expanded and Updated | | |
| | Report on the "Japan, China and Korea Business Collaboration Forum" | | |
| | "Japan, Unina and Korea Electronic Commerce Policy and Law Seminar" for 2005 – Forum to Exchange Information on Laws Pelated to Electronic Stanatures – | | |
| 14 Pages | Results of an Invitation for Public Participation in the "EY 2005 METLREID Tag Field Trials Projects" Announced | | |
| September 2005 | Shacial Penort on "The Current States and Development Strategies of e.Business Industries in Korea" | | |
| (Issue No. 6) | Outline of a Leftime at the "First ECOM Executive Special Saminar" | | |
| · · · · | Announcement of the "Third and Fourth ECOM Seminar 2005" | | |
| 9 Pages | Announcement of the "Japan-Korea EC Promotion Council Workshop" | | |
| October 2005 | Outline of the Lectures at the "Third ECOM Seminar 2005" | | |
| (Issue No. 7) | Utilization and Trend in International Standardization of RFID Tags in SCM | | |
| | Report on Holding of the Hakodate Meeting of "Japan-Korea EC Promotion Council" | | |
| 14 Pages | Report on the Progress of the R&R Federation Joint Project and the R&R Federation Joint Tokyo Meeting | | |
| November 2005 | Special Report: "Collaboration between businesses and universities in the United States with the aim of promoting electronic | | |
| (Issue No. 8) | commerce" | | |
| | Report on Status of IT efforts in Europe (Security Efforts for PKI, etc. in Germany) | | |
| | Report on Progress of RFID Tag Traceability Promotion WG and FY 2005 RFID Tag Field Trials Liaison Meeting | | |
| 14 Dagea | Outline of Lectures at the "Fourth ECOM Seminar 2005," Report on "e-Biz Expo 2005" | | |
| 14 Pages | Report on Participation in the ISO/TC184/SC4 International Conference Hangzhou, Report on Holding of PDQ Seminar | | |
| December 2005 | Report by Planning Committee | | |
| (Issue No. 9) | Report on the Progress of the "Diffusion Promotion and Social Acceptability Studies WG" | | |
| | Report on the "Fifth Joint Meeting of the Japan-Taiwan EC Promotion Committee" | | |
| 16 Pages | Outline of Lectures at the "Fifth ECOM Seminar 2005" and the "Sixth ECOM Seminar 2005" | | |
| To Fugue | Outline of the "Survey on Needs for Retirement Procedures" | | |
| January 2006 | Special Report – New Year's Greeting | | |
| (15500 100. 10) | Report on the Progress of the "Y 2005 RFID Tag Field Trials Liaison Meeting" | | |
| | Revision of the Guidelines for Personal Information Protection and Recent Problems | | |
| 16 Pages | Activity Report of the ebolic Asia Committee Outline of Locitizes at the "Source to ECOM Seminar 2005" | | |
| Echruczy 2006 | Counter of Lectures at the Overhit ECOM Seminatized as Activity Dias for EV 2000 | | |
| (Issue No. 11) | Report by Planning Committee - loward the Establishment of an Activity Plan for FY 2006 Report by Planning Committee - loward the Establishment of an Activity Plan for FY 2006 | | |
| (100000110111) | Cutting of the "Social COM Executive Social Social reports to the property of the social | | |
| | Outline of Lectures at the "Fighth ECOM Seminar" and the "Ninth ECOM Seminar" | | |
| | Report on "RFID Tag Diffusion Promotion Seminar" | | |
| 19 Pages | Outline of the "Collaborative Engineering WG" Survey | | |
| March 2006 | Special Report: "IT Strategies and Supporting Promotional Activities of ECOM" | | |
| (Issue No. 12) | Report by Planning Committee, Board Report: Activity Plan for FY 2006 (Draft) Approved | | |
| | Results. Significance and Future Development of the ADR Pilot Project | | |
| | Outline of the "ebXML Messaging Service Ver. 3 (ebMS Vr.3)" | | |
| | Outline of Lectures at the "Tenth ECOM Seminar – Latest Overseas Trends" | | |
| 10.0 | Report on "Long-term Storage Format Diffusion Seminar: Mechanism and Practices of Electronic Signature Storage - A | | |
| 13 Pages | Practical Approach to the e-Document Law" | | |

(5) ECOM Website

ECOM uses its website as a platform for disseminating general ECOM information. With its website, ECOM hopes to provide up-to-date information at all times, by providing regular updates, starting with the website's "What's New" section. Table 5 summarizes the information that has been released on ECOM's website. Information that is disseminated on a regular basis includes ECOM News and ECOM seminar announcements and applications. As update information, topics have included press releases by ECOM WGs and related government agencies. In addition, the website contains activity reports and other reports on the results of the activities of WGs, as intellectual property carried over from the old ECOM. The Website also has links to the websites of related organizations and has released related information in order to serve as a hub in Japan for EC-related information. In this fiscal year, the ECOM member web pages were revised significantly in order to make login possible for each user. The member web pages have provided priority information to ECOM members, including reference material for ECOM seminars and detailed reports on executive special seminars. On member pages, an e-conference room was also prepared for each WG and theme, to support the exchange of information and consensus building between members. Furthermore, the member web pages include information and tools that are needed to facilitate cooperation in ECOM activities, such as the ECOM Calendar.

(6) Other Activities

In addition to the above-mentioned activities, the Public Relations Group also supported press releases (press releases related to the Ministry of Economy, Trade and Industry, ECOM-WG and JIPDEC), news gathering activities (for Nihon Keizai Shimbun, Denpa Shimbun, NHK and others), ECOM introductions (for related individuals and related organizations (when necessary)), and the e-Biz (South Korea) exhibition (11/10 to 12).

Future Expectations (Summary)

In addition to administering the ECOM website as a portal site for topics related to EC, RFID tags and traceability, the Public Relations Group will continue to hold ECOM forums, ECOM seminars (monthly seminars) and the executive special seminars. Also, by issuing official publications (public relations magazines) (including News and Journals), the Public Relations Group will continue to broadly disseminate information on ECOM activities, research results and other relevant information, both domestically and internationally.

Table 5. Information Posted on ECOM's Website

| 1. | 1. Website (Japanese Version) | | | | |
|----|---|--|--|--|--|
| | What's New! (announcements, such as seminars, workshops, research reports, etc.) | | | | |
| | Press Releases (Six press releases related to ECOM) | | | | |
| | Newsletters (ECOM News No. 1 to 12) | | | | |
| | ECOM Seminar (Programs including history of seminars held) | | | | |
| | Activity Reports (FY 2000 to FY 2004) | | | | |
| | Research Reports, EC Events, Easy EC, etc. | | | | |
| | About ECOM (founding prospectus, main activities, member list) | | | | |
| | | | | | |
| 2. | 2. Global Website (English Version) | | | | |
| | What's New! (Overseas Version) | | | | |
| | ECOM News, Press Release | | | | |
| | WG Annual Reports, Research Reports | | | | |
| | | | | | |
| 3. | Member (Exclusive) Web Pages Number of Registered Members: 296 (as of March 31, 2006) | | | | |
| | What's New! (News for members (announcements, including lecture reports)) | | | | |
| | ECOM Calendar (Schedule for ECOM activities (including WG and task force activities)) | | | | |
| | ECOM Seminars/Forums (reference material for lectures and lecture reports) | | | | |
| | e-Conference Rooms, ECOM Member ID (Issue Site), Membership Procedures | | | | |
| | | | | | |
| 4. | ECOM ADR Site (ADR Office) (Posted by ADR-WG) | | | | |
| | What is the ECOM ADR Office? ADR Programs and Procedures, Frequent Problems, etc. | | | | |
| | Blog (from Actual ADR cases) | | | | |
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