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ECOM Journal 2007

FY 2006

■ Contribution

■ 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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Message from Chairman

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

There have been changes in the appearance of ticket gates of train stations in recent years. The widespread use of contactless smart cards such as SUICA and ICOCA has made it possible to maintain smooth flows of passengers, especially during commuting hours. Now that we are able to make cashless payments using electronic money even at old-fashioned Kiosk shops and Ekinaka (inside-the-station) stores as well as ticket gates, the convenience of passengers has greatly improved. Mobile phones, which have become a necessity of life for many people, are also provided with functions for electronic money services that allow users to make payment just by holding their phones over a device. These improvements in convenience have stimulated consumers' interest and promoted the widespread use of electronic money, seemingly creating a positive feedback cycle where the widespread use leads to further improvements in convenience.

A major, yet often unnoticed factor that supported this positive feedback cycle was that electronic money began to be used in the fields of social infrastructure services of a highly public nature (public transportation and telephone services). Without this factor, card users would have been carrying various types of smart cards, as we see today with "membership cards" that are issued on a retailer-by-retailer basis.

Needless to say, there are many ways to use RFID tags effectively for these services, although users may not notice the difference. Smart cards are carried by users or used to identify individuals, while RFID tags, which ECOM has been devoting its energy to promote, are used mainly as cards that are affixed to objects, or as "smart cards carried with objects." Unfortunately, RFID tags are not used as often in our daily lives as smart cards that are carried by users.

There are several reasons why smart cards carried by users have gained widespread currency prior to other types of cards. For one thing, if errors should occur when a card is read by a device, users can re-start the procedure from the beginning. Also, since cash is allowed to be used along with electronic money, the decision as to whether or not to use a smart card is always left up to its user. Aside from these "basic relationships between users and smart cards," new services are provided to promote the use of smart cards. These services give many people incentives to use smart cards, stimulating the development of these cards as basic social infrastructures.

Meanwhile, the recent spread of smart cards also leads us to ask ourselves a simple question as to "why smart cards have not been developed to allow users to use them for all public transportation services without paying attention to the difference in the types of smart cards and other restrictions." We have been informed that different types of readers are used for electronic money depending on the provider of the service. These restrictions are obviously undesirable from the viewpoint of users and consumers.

I made these remarks about contactless smart cards to examine the use of RFID tags, and I think these remarks will provide us with a number of suggestions. I would like to carry out activities in my last year in ECOM based on the recognition that we have not made as much progress in promoting the use of RFID tags as we had expected. There is a need to review the results that we have achieved so far and make necessary improvements in order to produce new ideas and take effective actions.

We will continue to work together with our member companies to further promote electronic commerce with the support of the Ministry of Economy, Trade and Industry. We would be pleased if this journal could provide the opportunity for more people to understand the activities of our organization, encouraging companies that approve our ideas to join the organization as new members.

Development of "Infrastructures for Electronic Commerce and RFID" and Expectations for the Next Generation Electronic Commerce Promotion Council of Japan

Masahiro Koezuka
Director-General, Commerce and Information Policy Bureau,
Ministry of Economy, Trade and Industry

I would like to express my heartfelt gratitude to the member companies, researchers and the members of the Secretariat of the Next Generation Electronic Commerce Promotion Council of Japan (ECOM) for their continued support for, and cooperation in the promotion of our information policies.

Recent technological innovations have brought about drastic changes in the environment for the use of IT. Due to the spread of broadband networks and the development of international standard, electronic commerce has shown rapid growth and development in various industries. Regarding RFID, the establishment of international standards and the development of technologies for low price have also promoted the use of RFID in companies. The use of IT has far-reaching and profound effects today on the level of the competitiveness and productivity not only of particular industries, but also of the entire range of industries and even the socio-economic system as a whole.

Meanwhile, our society as a whole is faced with many problems yet to be resolved, such as safety of products, environmental protection, management of chemical substances, and promotion of recycling.

To resolve these problems of our society, Ministry of Economy, Trade and Industry (METI) will work to develop the most advanced socio-economic "infrastructures for electronic commerce and RFID" in the world, with the aim of creating a system that to share information across "barriers" between companies, businesses and industries and across individual economic transactions. More specifically, our final goal is to create a system for a wide range of groups including users to share the beneficial information—and to make systems inside and outside companies integrated using tools of information sharing such as RFID and the next generation EDI and promote collective efforts (rather than individual efforts of each company) of all related industries across business boundaries, including providers of related services and recycling companies.

Since its foundation in April 2005, ECOM has always adopted the perspective of users to carry out its activities—including promoting the use of RFID, developing the environment for electronic commerce that meets international standards and establishing the most advanced business model in the world. ECOM has also used its extensive expertise acquired through past experience to play a crucial role in carrying out specific projects launched by related industries to create "infrastructures for electronic commerce and RFID." These efforts of ECOM lead us to hold great expectations for its future activities.

METI will also step up its efforts to promote the use of electronic commerce and RFID in order to resolve various problems facing our economy and society by working in closer collaboration with the members of ECOM, related organizations, and government agencies.

We would like to request your continued support and cooperation.

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

-ECOM Activity Report for FY 2006-

Overview of Activities in FY 2006

The Next Generation Electronic Commerce Promotion Council of Japan (ECOM) was founded in April 2005 to lead the world in taking the use of IT one stage further, with a view to (1) creating and promoting electronic commerce (EC) with high added value, (2) developing a safe and secure EC environment and (3) establishing an international system for electronic commerce. This is its second year, or an intermediate year for its development.

In 2006, we launched new self-initiated ECOM projects, such as the RFID Tag Field Trial Project and the RFID Tag/Traceability Workshop, working with the theme "How to Promote the Use of RFID Tags and Electronic Commerce." The Internet Shopping Dispute Consultation Office, which was active as a division of ECOM until last year, was made into an independent organization, EC Network, and started its activities. To promote the use of IT, we also cooperated in research on the actual state of EC and the size of the market and research on the actual state of EC in Japan and the United States, and created a model of investment effects focusing on B2B transactions.

Organization

As in the previous year, we organized (1) the RFID Tag Utilization Study WG (working group), the RFID Tag Field Trial Analysis/Enlightenment WG, the Diffusion Promotion & Social Acceptability Studies WG and other groups within the Special Committee on RFID Tags/Traceability, (2) the Personal Information Protection WG, the Electronic Signature WG, the Long-Term Signature WG and the Information Security Workshop within the EC Safety & Security Group, (3) the IT Utilization WG and the e-Government & Business Collaboration WG within the IT Utilization Group and (4) the Information Sharing Technology WG, the Next Generation EDI (ebXML) WG and the Practical B2B-EC Framework Study WG within the Technological Infrastructure Development Group.

Cross-sectional activities of ECOM are undertaken by the International Relations Group and the Public Relations Group, along with the General Affairs Section and the Accounting Section which support these groups, and the Secretariat of ECOM is managed by the Electronic Commerce Promotion Center of the JIPDEC(JIPDEC/ECPC).

ECOM projects were carried out with the participation of 166 member companies (board members: 23 companies, regular members A: 47 companies, regular members B: 94 companies and special members: two companies, as of March 2007. See the appended material). Working groups, each composed of ten-odd to several tens of ECOM members, were organized for major projects to examine problems concerning the project themes, hold free discussions and formulate proposals for the government, business groups and consumers. In the following sections, we will report on the activities of the Planning Committee and outline the results of the activities of each one of these WGs.

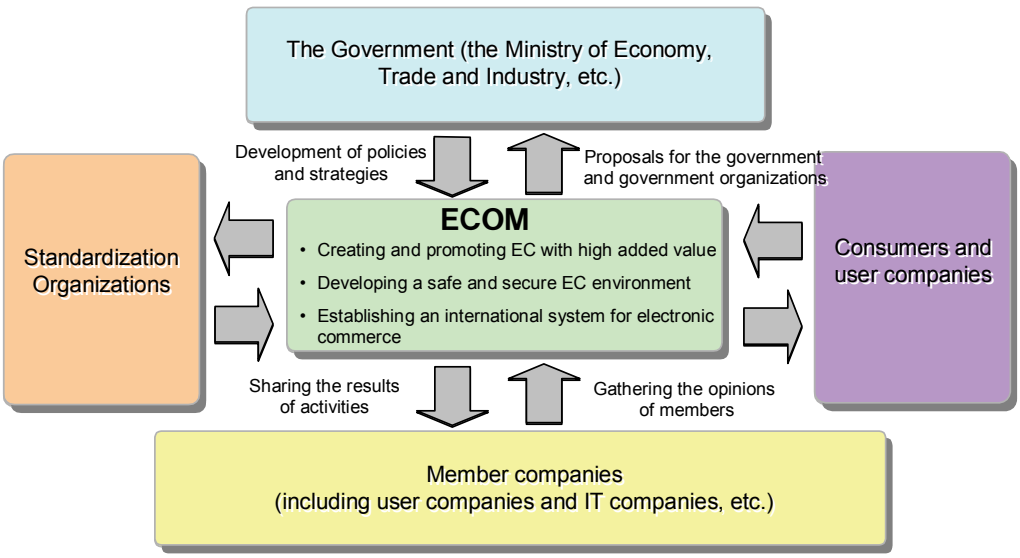


Figure 1. Purpose of ECOM and Activities of WGs

Planning Committee

Planning Committee

Overview of Activities

The Planning Committee is an organization that makes decisions for daily activities of ECOM. The committee, which is composed of board members, is engaged in various activities to support the management of ECOM projects, including examining general strategies, approving project plans and recruiting project members. Led by Mr. Akikazu Sato (Kao Corporation), the Chairman, and Mr. Yukihiro Shirakawa (Hitachi, Ltd.), the Vice Chairman, the Planning Committee held meetings six times in 2006 (Table 1). We will summarize the results of the activities of the Planning Committee below.

Examination of General Strategies

The Planning Committee examined general strategies of ECOM through formulating and approving project plans, recruiting project members and making reports on public relations activities. In 2006, with the cooperation of Kao Corporation (a board member of ECOM), the committee held its third meeting at the Arita Training Center of Kao Corporation and organized field trips to the Wakayama Factory of Kao Corporation and the Sakai Logistics Center of Kao Logistics Company afterward to exchange opinions on the use of IT at manufacturing and distribution sites.

Revisions to the Project Plan for FY 2006 and Deliberations

At its first meeting, the committee presented a detailed report on the project plan for FY 2006 that had been formulated in the previous year, and solicited proposals from member companies of ECOM. At the second committee meeting, the committee deliberated on the revisions made to the plan to draw up a draft of the project plan for 2006. The draft was reviewed at the meeting of the Board of Directors held in June and reported at the General Meeting.

Recruitment of Project Members

After gaining approval for the project plan (including detailed plans for individual projects) at the second committee meeting, the committee recruited working group members from among board members and regular members A during the period from May 18 through May 31, 2006. Based on the results of recruitment at the third committee meeting, the committee was able to register about 200 members for working groups, which started their group activities in June. As of the end of March, approximately 300 members including experts are registered for working groups.

Report on the Projects for FY 2006

The committee presented an interim project report for the first half of the year at the third committee meeting and a final report for FY 2005 (achievement report (draft)) at the sixth committee meeting.

Formulation of the Project Plan for the Next Year

At the fourth committee meeting, the Ministry of Economy, Trade and Industry made a presentation on the "New RFID and EDI Infrastructure Initiative" that provides a basis for our activities in the future. At the fourth, fifth and sixth meetings, the committee drew up a draft of the project plan for the next year based on proposals from board members.

Table 1. Details of the Project Committee Meetings

Meeting	Agenda	Date
First Meeting		April 24, 2006
	• Project plans (detailed) for the working groups for FY 2006 • Recruitment of working group members • "ECOM Forum 2006" • "ECOM Symposium 2006"	
Second Meeting		May 17, 2006
	• Project plan for FY 2006 (revised) • Recruitment of working group members • Budget plan for FY 2006 (revised) • Changes in the membership (report) • Report on the application for the "ECOM Forum 2006"	
Third Meeting		November 6 and 7, 2006 Held at the Arita Training Center of Kao Corporation
	• Project report (interim report) for the first half of FY 2006 – Special Committee on RFID Tags/Traceability – EC Safety & Security Group – IT Utilization Group – Technological Infrastructure Development Group – International Relations Group – Public Relations Group	
	• Field trips – Wakayama Factory of Kao Corporation – Sakai Logistics Center of Kao Logistics Company	
Fourth Meeting		January 15, 2007
	• Presentation on the "New RFID and EDI Infrastructure Initiative" • Drawing up the project plan for FY 2007 • Examination of the post next generation ECOM	
Fifth Meeting		February 23, 2007
	• Report on the "New RFID and EDI Infrastructure Initiative" • Projects for FY 2007 – Wakayama Factory of Kao Corporation – Project themes proposed by members • Overview of the project report for FY 2006	
Sixth Meeting		March 20, 2007
	• Project plan (draft) for FY 2007 • Budget plan (draft) for FY 2007 • Reports on the financial results (estimated) for FY 2006 • Financial report (draft) for FY 2006	

RFID Tag Utilization Study WG

Kazuo Hayakawa, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

In January 2006 the IT Strategic Headquarters formulated the "New IT Reform Strategy," in which utilization of RFID tags was defined as an important measure for implementing the strategy.

The working group studied the roles of RFID tag systems in creating IT-based management systems and examined technological and social problems (including trends in standardization) involved in developing RFID tags as social infrastructures.

The working group was composed of several sub-groups: a sub-working group on infrastructure development and environmental research, a sub-working group on trends in technological standardization, a task force for RFID tag trials and analyses, and a task force for the study of high-performance, large-capacity RFID tags. The two sub-working groups examined technological and social problems about RFID tags, while the two task forces, which are basically independent of other groups, analyzed last year's trials and conducted research on trends about high-performance, large-capacity RFID tags.

In this paper, we will report on the results of the examination in sub-working groups, focusing on the roles of RFID tag systems in creating IT-based management systems.

Activity Results

We first defined the roles of RFID tag systems in IT-based business management, and then examined applications required for each system layer of an RFID tag system to clarify the importance of network connections and connections with shared databases. We also studied trends in the standardization of technologies for RFID tag systems and practical uses of these technologies to examine the roles of RFID tag systems in developing IT-based management systems.

There are no reliable guidelines at present about goals to be achieved using RFID tags or about methods of achieving these goals. Views on the features of RFID tags as compared with existing bar codes differ from one standardization organization to another. Which one of these views should be adopted by users? What standards should be adopted to provide services (applications) or to achieve IT-based management using RFID tag systems?

The Industrial Structure Council (in 2005 and 2006) defined IT-based management not as "using IT as means of reducing costs" but as "effective use of IT for decision making and analysis in business management."

What is important, in other words, is to make efficient use of available information for decision making in and for business management.

(1) Roles of RFID Tags in Information Systems

Various information systems, including financial and accounting systems, have been developed and used in companies. However, information (data) provided for these systems is basically company information, which is kept confidential to the outside. Consequently, companies lack outside information required for business decisions in many cases, making assessments of their business achievements based solely on management indices. However, it has become clear that establishing connections between discrete systems and incorporating outside information using RFID tag systems can improve the efficiency of IT-based management. Figure 1 shows how information systems can contribute to IT-based business management.

(2) Roles of RFID Tag Systems

In our model, RFID tags themselves are no more than devices (terminals), or means of providing relevant information for those who need it in real time. Therefore, what is important for an RFID tag system is what kind of services (applications) it

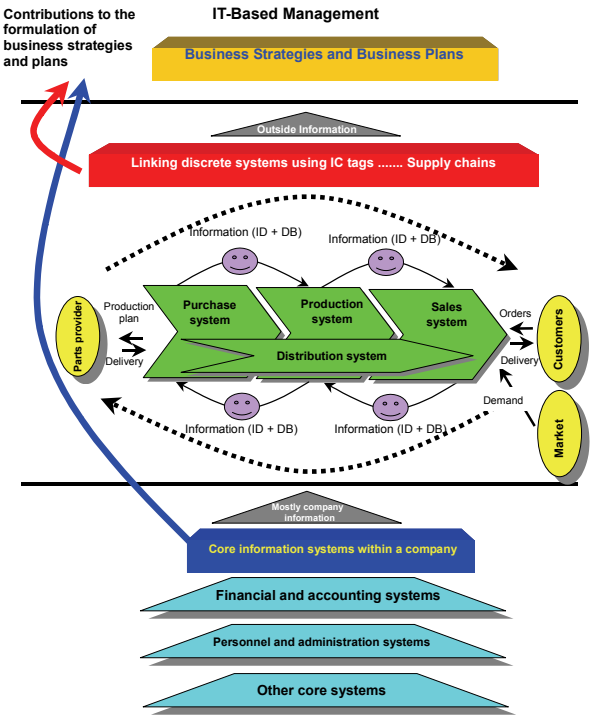


Figure 1. Contributions of Information Systems to IT-Based Management

can provide based on the information obtained from RFID tags. By what means these services are provided is not a matter of concern for users.

RFID tags, which are no more than media for carrying data, do not cause any change in business processes by themselves. What is important in improving business processes is the network connections and the use of shared databases. In other words, RFID tag systems stimulate innovation in business by eliminating barriers that prevent access to databases.

The keys to success, besides applications, are how to establish network connections and create flexible, high-performance databases. The fact that currently available RFID tag systems are not guarantee systems but best-effort systems is another important point to consider when introducing tag systems as social infrastructures.

(3) Business Platforms

Figure 2 shows applications required for layers in a model RFID tag system, and Table 1 presents examples of applications for different combinations of system layers.

How we are connected to networks and how we make use of shared databases makes a big difference in what benefits we can obtain. It is possible to provide traceability services by using network technologies such as Web 2.0, which allows information provided by a user to be incorporated into the entire system and used by other users. These technologies add value to information each time it is read and written, causing the value of information to increase the more often it is used by other users of the system. Thus, new effects are brought about by networks that connect different industries across barriers between companies and company groups and by contributions of company users that are connected with each other through these networks, and these connections provide the key to gaining competitive advantage in the market.

Summary

Although some people may think that there are well-established solutions to RFID tag systems, we actually have no such solutions, nor do we have examples that are best suited for these systems. There is a need to create opportunities for users, communication carriers and vendors in different businesses and industries to get together and examine comprehensive solutions that are best suited to their business environments.

Under the circumstances where no clear-cut solutions are available, we need to start from systems that provide the best performance currently available and to gradually develop general-purpose applications in accordance with technological trends.

As we mentioned in (2), current RFID tag systems are best-effort systems. Even if we can switch to the next generation network technology to increase the reliability of networks, these systems will remain best-effort systems unless the read rate of RFID tags reaches 100%. Meanwhile, a number of trials have shown that to improve the read rate, it is necessary not only to develop new technologies, but also to adopt effective measures when operating these systems.

There is a need for users to examine whether it is necessary to create and operate guarantee systems to achieve their purposes.

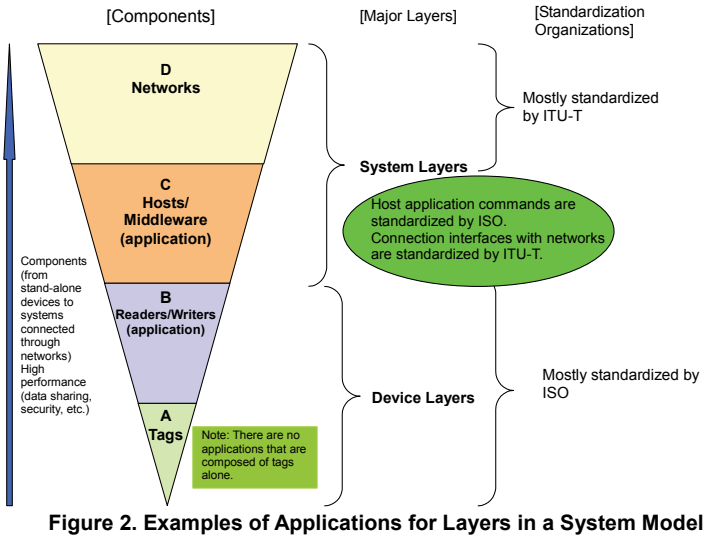


Figure 2. Examples of Applications for Layers in a System Model

Table 1. Examples of Applications for Different Combinations of Layers

No.	Components	Note
1	A+B	Closed at the level of the device layer. Replacement of bar codes, etc.
2	A+B+C	Closed at the level of the host layer (company information systems / discrete databases) Inventory management, speedy collection of the latest information, etc.
3	A+B+C+D	The system is connected to networks (shared databases). RFID tags are used to input and output information. It is possible to share information between different industries and use advanced technologies to access information in real time. Traceability (common use of history information), censor networks, etc.

RFID Tag Field Trial Project

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

Field Trial Project

Overview of Activities

In the RFID Tag Field Trial Project, we held preparation meetings three times as shown in Table 1 to make examinations of the project by interested members of the Planning Committee. Based on these examinations, we conducted trials using RFID tags. We used seminar cards made with RFID tags in these trials to check comings and goings at seminars held by ECOM and cooperating organizations. We requested seminar participants to use RFID tags in an actual situation in order to show the advantages of RFID tags. As shown in Table 1, the trials were carried out on six different occasions (in seven days).

More specifically, we created seminar cards that contain UHF-band RFID tags at the following three seminars and events to check the functions of these tags under different conditions (in different types of buildings and using different reading devices):

(1) With the cooperation of the SFC Institute of Keio University, which is running the "Multi-Code Joint Operation Project" (a field trial project of the Ministry of Economy, Trade and Industry in FY 2006), we carried out a trial to demonstrate the possibility of controlling admissions to a forum held by the SFC Institute by using admission tags created by ECOM. In this trial, we made technological assessments of UHF-band RFID tags that were used for membership cards for the "Multi-Code Joint Operation Project" and for ECOM seminar cards.

(2) We conducted trials at two ECOM seminars using "RFID tag admission cards." These seminars were attended by a total of about 150 participants.

(3) To conduct trials at RFID Tag Promotion Seminars (in Osaka, Hiroshima and Takamatsu) held by the Ministry of Economy, Trade and Industry and the Electronic Commerce Promotion Center of the JIPDEC (JIPDEC/ECPC) with the cooperation of ECOM, we checked the portability of our system (ease of carrying and installing it at seminar sites) and the effects of the environments in different types of seminar halls. Each seminar was attended by 60 to 80 participants.

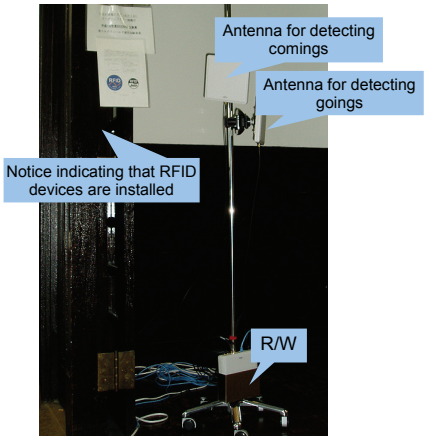
Table 1. Activities for the RFID Tag Field Trial Project

Meeting	Date
Description of activities	
First Meeting	July 18, 2006
Preparation Meeting	
Second Meeting	July 31, 2006
Preparation Meeting	
-	November 22, 2006
Trial at the Forum held by the SFC Institute of Keio University	
-	November 23, 2006
Trial at the Forum held by the SFC Institute of Keio University	
Third Meeting	December 12, 2006
Preparation Meeting	
-	February 1, 2007
Trial at the 18th ECOM Seminar	
-	February 19, 2007
Trial at the RFID Tag Promotion Seminar (in Osaka)	
-	February 21, 2007
Trial at the RFID Tag Promotion Seminar (in Hiroshima)	
-	December 23, 2006
Trial at the RFID Tag Promotion Seminar (in Takamatsu)	
-	March 7, 2007
Trial at the 21st ECOM Seminar	

Activity Results

Picture 1 shows how trial devices were installed at the seminar hall in Osaka. The building was build with bricks in 1930, with its interior made of wood and plaster. In Hiroshima, we conducted the trial in a hotel hall made of reinforced concrete. The seminar hall in Takamatsu was built in 2004 with the latest technology using RCFT (Reinforced Concrete Filled Steel Tube) structures.

The trial at the forum held by the SFC Institute of Keio University was conducted in Marunouchi Building, while the trial at the ECOM seminar was conducted in the building of the Japan Society for the Promotion of Machine Industry.



Picture 1. Reader/Writer Installed at the Seminar Hall in Osaka

The trials at the RFID tag promotion seminars was conducted using a system developed by Nihon Unisys and seminar cards manufactured by Dai Nippon Printing Company using UHF-band RFID tags (meeting the C1G2 standards). We coated the seminar cards with plastic to increase their durability and used a tag reader/writer for UHF-band RFID tags (C1G2) manufactured by Fujitsu. The outline of the system is shown in Figure 1.

We provided seminar participants with straps to carry seminar cards around their necks (Picture 2).

Summary

The trials showed that most of the seminar cards distributed to participants can be read correctly if the output level of the reader/writer is set to 0.5 W.

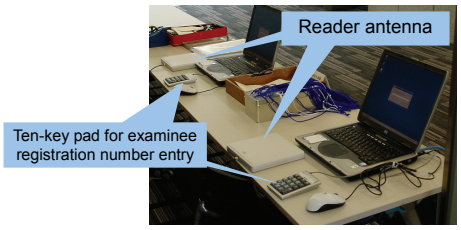
Picture 2. A Seminar Card Carried with a Strap Worn around the Neck

However, the reading accuracy depended not so much on the materials and structures of buildings as on how electric waves were reflected by metals that exist near the antenna. The trials made it clear that minor adjustments are needed depending on circumstances when installing the antenna.

We requested participants to carry RFID tags with straps around their necks, but our trials showed that this method can cause tags to be hidden behind human bodies depending on subtle differences in their postures when coming in or going out, and that the reading accuracy is greatly affected by the positional relationship between the antenna and tags (whether they are directly opposite or oblique to each other) and the distance between bodies and tags.

The trials showed that under ideal conditions (with carriers of RFID tags holding their cards to the antenna), it was possible to read tags from a distance of more than one meter.

Meanwhile, at the reception desk, RFID tags were read (Picture 3) from a close distance with an accuracy of 100%.



Picture 3. System Installed at the Reception Desk at a Seminar in Takamatsu

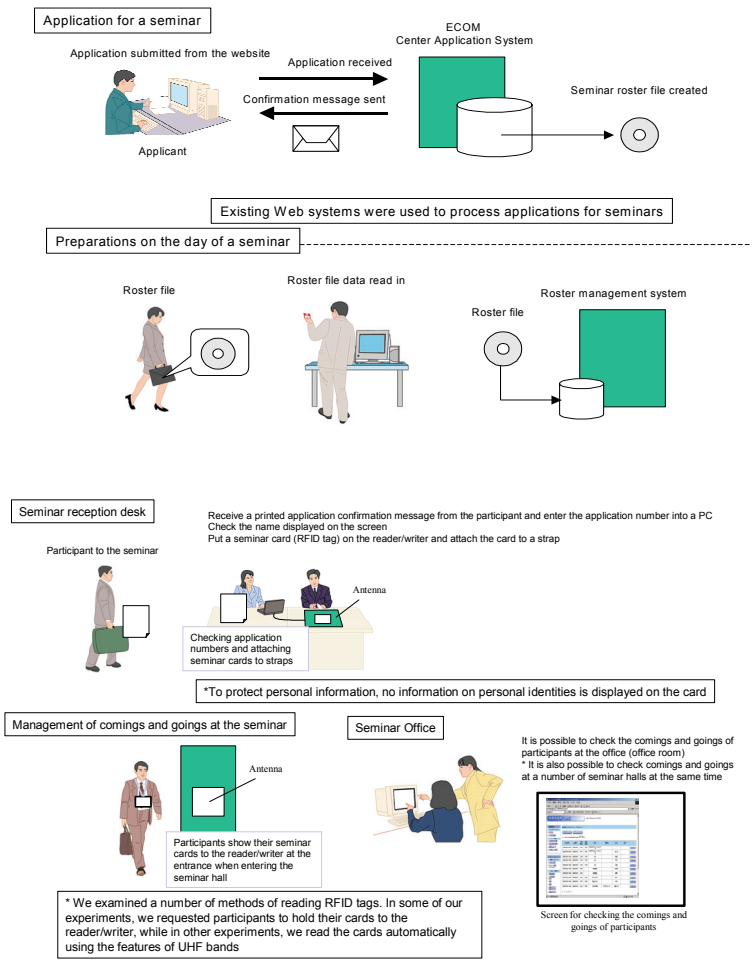


Figure 1. Outline of the System for Managing Comings and Goings Using RFID Tags

FY 2006 METI RFID Tag Field Trial Projects Liaison Meeting

Masatomo Takemoto,
Next Generation Electronic Commerce Promotion Council of Japan

Liaison Meeting

Overview of Activities

In FY 2006, we managed a joint office in collaboration with the Distribution Systems Research Center to organize liaison meetings for the following nine projects: Six projects for the "Field Trials on the Efficiency of Distribution Systems Using RFID Tags" proposed by the Distribution and Logistics Systems Policy Office of the Commerce and Information Policy Bureau (Ministry of Economy, Trade and Industry), the "International Standard Achievement Project" and the "Multi-Code Interoperability Project" proposed by the Information Economy Division of the Commerce and Information Policy Bureau (METI), and the "UHF-Band RFID Tag Technology Development Project." Details of these liaison meetings, held three times in FY 2006, are shown in Table 1.

Activity Results

To facilitate the field trials, we organized RFID Tag Field Trial Projects Liaison Meeting composed mainly of those who worked for the RFID Tag Field Trial Project (about 50 members). These meetings were held to bring together members of different projects who are usually conducting trials separately to allow them to report on the outlines of their projects, progress and expected outcomes of those projects and other related issues to discuss the projects and share information among themselves. The members were also provided with information on the latest trends required to promote the use of RFID tags. We will report on the proceedings and discussions at these liaison meetings below.

First Meeting (November 17, 2006)

At the beginning of the meeting, after the greeting messages from the Ministry of Economy, Trade and Industry and the Secretariat of ECOM, members of the meeting introduced themselves. The Information Economy Division (METI) explained that this was "the fourth year of the field trial project, and that trials for the International Standard Achievement Project, the Multi-Code Interoperability Project and the UHF-Band RFID Tag Technology Development Project (Table 2) are conducted to achieve high levels of performance," and the Distribution and Logistics Systems Policy Office explained that "one of the goals of the projects was to clarify the overall advantages of RFID tags. To achieve the goal, we need to trace the effects of these tags on sales observed at retail stores last year back to the source of the supply chain and assess the effects of source tagging practiced by manufacturers in the projects (Table 3)." In the report session, members of the meeting presented brief reports on field trial projects to outline the purposes, problems, goals and schedules of the projects.

Table 1. FY 2006 METI RFID Tag Field Trial Liaison Meeting

Meeting	Date
Description of activities	
First Meeting	November 17, 2006
Summary Reports on Field Trial Projects	
Second Meeting	January 20, 2007
Summary Reports on Field Trial Projects, the ISO Code System, and the latest information on the activities of EPCglobal	
Third Meeting	February 13, 2007
The "New RFID and EDI Infrastructure Initiative" aimed at creating new information infrastructures for the socio-economic system-a report by the Ministry of Economy, Trade and Industry	
Fourth Meeting	Scheduled to be held at the end of April 2007
Reports on the Final Outcomes of Field Trial Projects	

Second Meeting (January 10, 2007)

In the second liaison meeting, members of the projects presented reports on the progress of the projects and the specific contents of the trials, along with reports on trends in standardization, movements among business groups and government policies. Members discussed various issues in their progress reports, such as: methods of source tagging, output levels and read distances of card readers/writers, units for RFID tags used at stores, relationships with JAN codes and bar codes, relationships between delivery/inspection and EDI, differences between Japan and other countries concerning return and resale of products, guarantee periods and sell-by dates. Members pointed out the need for information required to protect privacy in actual situations and the necessity for a standard mark to indicate that RFID tags are attached to products.

Third Meeting (February 13, 2007)

At the beginning of the third liaison meeting, the Ministry of Economy, Trade and Industry reported on the progress of the "New RFID and EDI Infrastructure Initiative" aimed at creating new information infrastructures for socio-economic systems, analyzing the current state of RFID tags and electronic commerce and challenges facing the Japanese economy. In project reports, members of the meeting gave a summary presentation on a public field trial on the management of stock locations conducted at a mass home appliance retailer for a project in the home appliance industry. Some participants pointed out problems concerning protection of privacy and asked questions as to "how we can explain the advantages to consumers."

Future Plans

We are planning to hold a meeting at the end of April 2007 for final reports on the outcomes of the trial projects.

Table 2. Outlines of RFID Tag Field Trial Projects by the Information Economy Division of the Commerce and Information Policy Bureau (Ministry of Economy, Trade and Industry)

Project Name	Theme	Applicant * Participants are shown in brackets.	Outline of the Project
International Standard Achievement Project	The project is aimed at creating a common base for RFID tags according to the ISO standards in order to promote international standards in collaboration with other ASEAN countries, to corroborate the usefulness of RFID tag systems in global markets and to promote the use of RFID tags.	Japan Electronics and Information Technology Industries Association Mitsubishi Research Institute, Inc.	• Trials are conducted in cooperation with the Standards and Industrial Research Institute of Malaysia (SIRIM) to introduce RFID tags to improve the efficiency of paper checks for import licenses. • RFID tags are attached to products exported from Malaysia to Japan to check their effects on the efficiency of the distribution in the home appliance industry. • Trials are conducted at major electric appliance stores in Thailand, Malaysia and Singapore. • Workshops on RFID tags in Thailand, Malaysia and Singapore • Middleware applications are designed, developed and tested to create a seamless system for processing multiple RFID tags, with the aim of improving the speed of processing and reducing loads for reading and writing. International standards are proposed for those middleware applications.
Multi-Code Interoperability Project	The project is aimed at developing and testing platforms to ensure the interoperability of multiple codes in environments where different code systems such as ISO codes and ucodes are used at the same time.	Nihon Unisys, Ltd.	• Platforms are developed to ensure the interoperability of multiple codes with a view to handling traffic volumes to meet business demands in environments where ISO codes, ucodes and unique codes of organizations are used at the same time. • Platforms are operated at TRONSHOW 2007 and ORF 2006 to demonstrate the interoperability between multiple codes by using staff member cards, admission cards and other necessary devices. • Platforms developed in the project are released to the public as open source.
UHF-Band RFID Tag Technological Development Project	The project is aimed at developing the following functions required to use RFID tags to manage products throughout their entire life cycles: • Technologies for using information without violating privacy • Technologies for providing adequate protection for information on RFID tags used between companies	Hitachi, Ltd. (NEC Corporation Fujitsu Japan Dai Nippon Printing Company Toppan Printing Co., Ltd. IBM Japan Renesas Technology Corp. Yagi Antenna Inc. and other companies)	• Secure RFID tags are developed to provide the following functions: * Function to disallow selective reading of data * Function to restrict communication distances temporarily or permanently and to remove the restriction * Function to allow users to set passwords for various user areas • Methods of operating secure RFID tag systems are developed and tested. * Managing passwords that are set for various areas of RFID tags * Testing methods of operating systems in user industries

Table 3. Outlines of RFID Tag Field Trial Projects by the Distribution and Logistics Systems Policy Office of the Commerce and Information Policy Bureau (Ministry of Economy, Trade and Industry)

Project Name	Industry Concerned	Applicant * Participants are shown in brackets.	Outline of the Project
Field trials on advanced information systems for distribution in the home appliance industry using RFID tags	Consumer electronics industry	Japan RFID Consortium for Consumer Electronics (Mizuho Information & Research Institute, Inc. Hitachi, Ltd.)	The project aims to use RFID tags for products throughout the entire process from manufacturers through distributors to retailers, consumers and maintenance companies to check the effects of the tags on (1) the efficiency in the business operation flow of the management of product life cycles (this project is targeted at maintenance and repairs) and (2) the efficiency in the stock control at mass retail stores. The project also examines how to create added value services and new business models that can make financial contributions to small- and mid-sized companies.
Field trials on the efficiency of distribution in a mass distribution system with sales quotas using RFID tags	Publishing industry	Japan Publishing Organization for Information Infrastructure Development (Showa Tosho, Suuri-Keikaku Co., Ltd. Hitachi, Ltd., Toppan Printing Co., Ltd. Oji Paper Co., Ltd., NTT Comware Mitsubishi Research Institute, Inc. NTT Communications, and other companies)	The project aims to use RFID tags for the management of orders in large-volume distribution (distribution of comic books), the checking of the quality of pulp made from recycled paper, and the selection and management of books for quota sales in order to demonstrate how these tags can improve the efficiency in existing business practices and distribution and how they can reduce return rates in the printing industry.
Field trials on the use of RFID tags in supply chains using source tagging for convenience stores	Convenience store industry	FamilyMart Co., Ltd. (Itochu Mechatronics Corporation Toshiba Tec Corporation, and other companies)	The project aims to examine the possibility of using RFID tags for supply chain management at convenience stores by the source tagging of products (such as lunches, rice balls and factory-made bread) at factories. The project also examines in what areas attaching RFID tags to shipment units (cases) can improve the efficiency and accuracy of delivery and distribution.
Field trials with RFID tags for advanced systems for the distribution of consumer goods	Supermarket industry	Consortium for the RFID Tag Field Trial Project for Creating Advanced Distribution Systems of Consumer Goods.	The project is targeted at the liquor, processed food and daily commodity industries, which are faced with the shortening of product life cycles and increased fluctuations in the demand. By conducting field trials, the project aims to examine how RFID tags can be used in these industries to reduce lead times and inventory days in the supply chain from manufacturers through wholesalers and distribution centers to retail stores.
Field trials on supply chains between companies in the international distribution of apparel products between Japan and China	Apparel Industry	Sumikin Bussan Corporation Flandre Co., Ltd. [Fujitsu Research Institute].	The project aims to examine how RFID tags can be used for source tagging in the international distribution in the apparel industry to improve the efficiency and accuracy of deliveries in supply chains that connect a whole range of companies across country borders. The project also examines how RFID tags can be used to improve the visibility of stocks and the accuracy of inventory data at each stage from production to sales and help manage each product in stock. The final goal of the project is to enhance the quality of services by preventing running out of stocks on products of proper sizes at retail stores, by improving the adequacy of orders based on accurate information on consumers' demand, and by increasing the efficiency of manufacturing.
Field trials on the promotion of use of RFID tags in the department store industry	Department store industry	Japan Department Stores Association NTT Comware (Fujitsu Japan Mitsukoshi, Ltd., and other companies)	To spread RFID tag systems in the department store industry, the project intends to promote the use of RFID tags among companies in the women's shoe industry in order to examine how source tagging can be used to create integrated business models for managing supply chains from manufacture through distribution to sales. The project also aims to use RFID tags in various situations in sales of cosmetics to examine how customer relationships need to be managed for source tagging and how RFID tags can be effectively used by consumers.

RFID Tag Field Trial Analysis/Enlightenment WG

Hisanao Sugamata, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

To share the know-how for, and problems involved in using RFID tags clarified through field trials and to formulate strategies for optimizing RFID tag systems by integrating transactions between companies and operations within companies, we made a cross-project analysis of the results of the FY 2005 METI RFID tag field trials.

We chose the following five projects for our analysis:

- Trials on total traceability in the electronic and electric product industry using RFID tags
- Trials on the use of RFID tags in the medical industry
- Trials on the use of RFID tags for services at future stores
- Trials on the use of RFID tags in the media contents industry
- Trials on the use of RFID tags in the ASEAN region

To analyze the results of these trials, we formed five teams to review how the "creation of added values" and "business efficiency" are affected by the use of RFID tags and to extract problems revealed through the trials.

After the results of individual projects were analyzed by the five teams, we made a cross-project analysis of the trials to make clear the possibilities and problems of RFID tags.

Table 1 shows details of our activities.

Activity Results

The reason why we selected "business efficiency" and "creation of added values" as criteria for analysis lies in the following situation peculiar to Japanese users: "Japanese users are satisfied, at least to a certain extent, with the level of visibility of business processes provided by the existing systems that use bar codes as the identification technology. Nevertheless, they hold high expectations for RFID tags at the same time."

Table 1. Activities of the "RFID Tag Field Trial Analysis/Enlightenment WG"

Meeting	Date
Description of activities	
First Meeting	August 30, 2006
Joint meeting with the RFID Tag Utilization Study WG. Agreement on the activities and organization for the project.	
Second Meeting	September 5, 2006
We discussed perspectives for the analysis of the results of trials on RFID tags (creation of new values and improvement of productivity), and determined members to be in charge of different trials.	
Third Meeting	October 20, 2006
We discussed the results of analysis of each member in charge and selected an overall theme to summarize the results.	
Fourth Meeting	November 30, 2006
We summarized the results of analysis of members in charge using a unified theme.	
Fifth Meeting	December 21, 2006
We discussed the overall achievements and problems of the trial project as a whole, and reviewed opinions about measures for improving the read accuracy of RFID tags.	

Discussions of meeting members revealed that there was a difference between the model of distribution in the United States represented by Wal-Mart and the model of distribution adopted as the benchmark in field trials conducted in Japan—i.e., the "difference in the level of demand for the visibility of business processes."

Trials in Japan demand high levels of visibility of business processes (read accuracy required for code systems). The reason lies in the fact that existing systems can already achieve a visibility level of 99.999%, against which the actual level of visibility is compared. Meanwhile, in European countries and the United States, which are considered to be advanced countries in terms of the use of RFID tags, even a visibility of 90% represents a large increase in the visibility of business operations compared with existing systems, which gives rise to expectations for added values produced by various means, including reducing stocks, decreasing return rates and increasing sales.

(In existing business models in Japanese retail industries, comings and goings of products in the process of distribution and inputs and outputs of data are assumed to be synchronized for each SKU (stock keeping unit) or, if possible, for each product. Attempts have been made to improve the accuracy of deliveries and reduce costs at the same time based on this assumption.

For example, the project for "field trials on the use of RFID tags for services at future stores" is aimed at "improving the level of customer satisfaction" and enumerates various effects of RFID tags, such as "increases in the number of customers visiting stores (customer services)," "increases in the number of new customers," "increases in the number of inquiries about products (customer services for product proposals)," "increases in the number of repeat purchases" and "decreases in waiting time of customers required for inventory checks." What should not to be forgotten, however, is that these trials are conducted on the assumption that stocks that exist on an information system exist as physical entities as well. This assumption about the synchronization between information on stocks and actual stock supplies, which is "taken for granted" in existing systems, is what makes it possible to reduce the time for "searching" for inventory data by sales clerks and increase the time for customer services and sales, producing added values using RFID tags (for increases in the time for customer serves to lead to increases in purchases by customers, there is a need to provide adequate training for employees). If these assumptions are satisfied, reducing the time for "searching" for inventory data by sales clerks will produce large added values, and RFID tags will be able to contribute greatly to reducing search time.

Future Plans

Our analyses of the five projects clarified problems about "performance of RFID tags," "performance of readers/writers," "operations of RFID tags" and "considerations required for core operations" (Table 2).

We are planning to examine solutions and measures for these problems and formulate comprehensive guidelines for introducing RFID tag systems in business operation.

Table 2. Problems concerning RFID Tags

Performance of RFID tags	Read accuracy Downsizing Service life Memory capacity Problems with metal materials
Performance of readers/writers	Adjustments of communication distances Reducing the time for processing input data Functions for access control Resistant to interference of light waves Problems with the difference in wavelengths between countries Identification of more than one tags
Operations of RFID tags	Automatic attaching of RFID tags Hand labelers Standardization of user areas Standardization of code systems and management Measures for using bar codes together with RFID tags Tags that do not come off easily but are easy to detach
Considerations required for core operations	Systems that afford traceability and ease in supply chain management Sharing of EDI and RFID tag information Considerations for small- and mid-sized companies Problems with data on large quantities of products Ensuring security Protecting privacy

Diffusion Promotion & Social Acceptability Studies WG

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Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

To promote the use of RFID tags, there is a need to expand the range of their uses, reduce costs of development and create new business models, and besides these measures, it is equally important to examine how we can protect privacy in the coming age of widespread use of RFID tags and "ensure the social acceptability of the tags." For this reason, ECOM has been reviewing measures for improving the social acceptability of RFID tags over the last three years.

In FY 2004 (the first year of the project), we drew up "Guidelines for Companies on the Protection of Consumers in the Use of RFID Tags" in accordance with the guidelines developed jointly by the Ministry of Economy, Trade and Industry, the Ministry of Internal Affairs and Communications, and the Personal Information Protection Law. We drew up these guidelines to clarify conditions required to achieve fairness and protect consumers in transactions using RFID tags, with the aim of increasing the social acceptability of these tags.

In FY 2005 (the second year of the project), we examined (1) privacy risks posed by the widespread use of RFID tags, (2) practicable methods for protecting privacy (technologies and

Table 1. Activities of the "Diffusion Promotion & Social Acceptability Studies WG"

Category	Meeting	Date
	Description of activities	
WG	First Meeting	July 27, 2006
	Results of the previous year reviewed. Strategies for the activities of the current year, organizational arrangements and schedules confirmed.	
Other	-	August 9, 2006
	Visiting Consultation: Japan Consumers' Association	
Other	-	September 15, 2006
	Study session on RFID tags: Japan Association of Consumer Affairs Specialists	
TF1	First Meeting	September 22, 2006
	Goals of activities and schedules confirmed. Reports on the "Visiting Consultation" and the "Study Session on RFID Tags," and discussions.	
TF2	First Meeting	September 22, 2006
	Contents of the website launched in the previous year ("Introduction to RFID Tags for Beginners") reviewed for revision.	
WG	Second Meeting	September 28, 2006
	Reports on the progress of activities of TF1 and TF2. "Problems concerning the disposal of RFID Tags," report and discussions.	
Other	-	October 19, 2006
	Interview with CO-OP representatives	
Other	-	October 20, 2006
	Information exchange meeting about RFID tags: Shodanren (Japan Federation of Consumer Organizations)	
TF1	Second Meeting	October 24, 2006
	Reports on the interview with CO-OP representatives and the information exchange meeting, and discussions. Examination of measures for raising the awareness of consumers about RFID tags.	
TF2	Second Meeting	October 25, 2006
	Reviews of the revisions to the contents of the website and examination of the framework for the revisions. Tasks allocated to members.	
WG	Third Meeting	October 30, 2006
	Lecture "Problems of Privacy concerning RFID Tags and Their Solutions." Reports on the progress of activities of TF1 and TF2.	
TF1	Third Meeting	December 8, 2006
	Discussions about the basic plan of a flyer for consumers, "Introduction to RFID Tags for Beginners."	
WG	Fourth Meeting	December 15, 2006
	Reports on the progress of activities of TF1 and TF2. Report on "Technologies for Protecting Privacy and Ensuring Security for RFID Tags.	
TF2	Third Meeting	December 25, 2006
	Progress of the revision of the website contents reported, and tasks reallocated.	
WG	Fifth Meeting	January 29, 2007
	Reports on the progress of activities of TF1 and TF2. "Guidelines for Companies on the Protection of Consumers" for 2004 reviewed.	
TF1	Fourth Meeting	February 8, 2007
	Opinions about revisions to the flyer ("Introduction to RFID Tags for Beginners") solicited to be incorporated in the revisions.	
Seminar	20th Meeting	February 23, 2007
	ECOM Seminar: RFID Tags and Protection of Privacy at Contact Points with Consumers	
WG	Sixth Meeting	March 1, 2007
	Reports on the progress of activities of TF1 and TF2. Contents of reports reviewed and discussions held.	

techniques) and (3) how to apply protective measures to various situations in supply chains and how to assess these measures. We examined these issues to review problems concerning privacy involved in the use of RFID tags and to develop measures for protecting privacy at stores and other contact points with consumers. We also developed a website entitled "Introduction to RFID Tags for Beginners" to provide information on RFID tags for consumers and improve their understanding.

In FY 2006 (the third year of the project), the working group carried out the following activities to provide information for consumers and companies and develop their understanding of privacy protection concerning RFID tags:

(1) We visited consumer organizations to examine what were the most effective measures to promote the use of RFID tags through discussions with members of those organizations.

(2) We published a flyer to improve the understanding of consumers about RFID tags.

(3) We updated the information on the website, "Introduction to RFID Tags for Beginners," and made revisions to the contents to make it easier to understand.

(4) We reviewed new technologies related to RFID tags, security and protection of information privacy.

(5) We examined problems concerning the disposal of RFID tags.

(6) We reviewed the "Guidelines" for FY 2004.

(7) We reported on the activities of the working group at the ECOM seminar.

Among these activities, (1) through (4) required separate discussions, so we organized task forces (TFs) within the working group to make detailed examinations to carry out the activities. Table 1 shows the activities of the work group as a whole.

Activity Results

(1) Some discussions with consumer organizations

We visited three major consumer organizations (Japan Association of Consumer Affairs Specialists, CO-OP and Shodanren (Japan Federation of Consumer Organizations)) for discussions. Before visiting these organizations, we also visited the Japan Consumers' Association to exchange opinions.

We held discussions according to the following procedures:

a) Presentation on the activities of ECOM

b) Videos of the latest news related to RFID tags

- NHK news: Utilization and development of RFID tags in fields related to publishing
- TV Tokyo WBS news: How RFID tags are used in various fields and for business purposes

c) Lecture on RFID tags using the website, "Introduction to RFID Tags for Beginners"

d) Exchange of opinions and discussions

1) Japan Association of Consumer Affairs Specialists

Members of the Association pointed out that despite the capability of RFID tags for identifying products accurately and ensuring traceability, there is a need to follow the following guidelines:

a) To provide the information that consumers have a perfect right to decide whether or not to leave information on RFID tags

b) To provide means of writing information onto RFID tags, delete and restore it

c) To protect privacy and prevent information on RFID tags from being read without the consent of the user

d) To avoid negative effects on medical devices and the environment

It was also pointed out that to promote the use of RFID tags, it is especially necessary to take active measures to provide information for the elderly and other people with disabilities in obtaining information to improve their understanding.

2) Japanese Consumer's Co-operative Union (CO-OP)

Some members of CO-OP expressed the opinion that since the level of understanding of CO-OP members about "RFID tags" was low, it was necessary to provide relevant information to improve their understanding. However, the majority of CO-OP members believed that there was no risk to their safety as long as security was ensured in the electronic commerce via the Internet, and considered it unlikely that the issue of privacy concerning RFID tags would become a serious problem in the future.

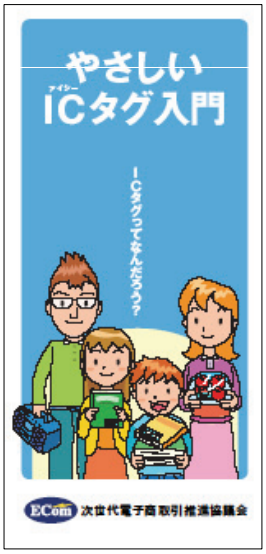

Figure 1. Cover of the Flyer, "Introduction to RFID Tags for Beginners"

Meanwhile, CO-OP as a business organization was interested in the development of businesses using RFID tags, and CO-OP members expressed the opinion that the cost-efficiency of RFID tags would limit their use basically to distribution of products, and the tags would be used for different purposes from those of bar codes that are used attached to products. If the unit price of RFID tags should be lowered greatly in the future, there might be some needs for those tags to be used for managing stocks of refrigerators, but at present, their price makes it necessary to examine how to collect and reuse tags attached to shipment containers for home-delivery services. CO-OP representatives also showed interest in using sensor tags to control temperatures of products for cold or hot delivery services.

3) Shodanren (Japan Federation of Consumer Organizations)

Some Shodanren members considered that when delivering products with RFID tags to consumers, sellers should be required to provide the information that privacy is protected using technologies to "kill" RFID tags, while others stated the opinion that there was a need to develop measures for preventing malevolent third parties from using readers/writers to tamper with RFID tags. However, we also found members who held the following expectations for RFID tags:

a) Using RFID tags for product recalls and in the event of accidents

b) Using RFID tags to obtain instruction manuals and warranties

c) Using RFID tags to secure traceability for supply chain management

There were also opinions that it was possible to protect privacy by reducing read distances, or that adding read and write functions to mobile phones would help individuals use RFID tags more efficiently.

(2) Producing a flyer for consumers

One of the requests commonly made in the discussions with members of these consumer organizations was to publish a "flyer written in plain language" to improve the understanding about RFID tags. Therefore, based on the opinions expressed in the discussions, we organized a task force to publish a flyer for consumers entitled "Introduction to RFID Tags for Beginners" with a view to providing basic information for consumers (Figure 1). This is the first flyer published in Japan which was written about RFID tags from a neutral position.

We tried to make the flyer similar to the website, "Introduction to RFID Tags for Beginners" (currently being revised) in terms of both the design and contents. The flyer has the following features:

1) We used A4-sized, three-folded sheets of paper to maximize its portability.

2) Family characters are used in the flyer.

3) The term "RFID tag" is used throughout the flyer to provide explanations in plain language.

4) The flyer provides concise explanations about shapes and functions of RFID tags.

5) Five different situations, all closely related to consumer services, are presented to explain how RFID tags can be used in our daily lives.

6) Effects of RFID tags on medical care services and the environment are explained in the flyer.

Copies of the flyer are currently available at ECOM, but we are planning to provide a downloadable PDF file on our website, which is currently being revised, to allow users to access the flyer freely.

(3) Revising the Website for Consumers

We developed a website entitled "Introduction to RFID Tags for Beginners" targeted at the general public to provide a wide range of information on RFID tags for beginners and to help develop a general understanding. Since we launched the website last July, we have received many telephone inquiries from those in charge of problems concerning intellectual properties and members of consumer groups, as well as requests for using the website as a reference material for explaining RFID tags to elementary school children. We have provided relevant information in response to these inquiries and requests. On Google, which has the largest market share, our website ranks relatively high (18th, as of February 28, 2007) in searches made with "RFID tag" used as the keyword. These results lead us to believe that our goal has been achieved at least to a certain extent.

We reviewed the website for consumers in 2006. We revised the contents to provide up-to-date information and changed the designs to offer clearer explanations and make screens easier to view (Figure 2). Although we generally followed the policy for the previous year when editing the contents, we made substantial revisions to the following three points:

1) The main character that appeared on last year's website, which was a white-collar worker with a serious look on his face, was replaced with four family characters (parents, a daughter and a son) to give a softer touch to the website.

2) We presented photos taken from METI RFID tag field trials on the webpage to show how RFID tags are used in actual situations.

3) We created a site for downloading the flyer, "Introduction to RFID Tags for Beginners."

(4) RFID Tags and New Technologies Related to Security and Protection of Privacy

We carried out extensive research on methods for protecting privacy concerning RFID tags last year and made evaluations of the methods for different uses of RFID tags. In 2006, we continued our research and examined (1) topics about problems of security concerning RFID tags and (2) new technologies related to protection of privacy.

Figure 2. Top Page of the Website, "Introduction to RFID Tags for Beginners"

1) Problems of Security Concerning RFID Tags

The following three problems are pointed out about the security of RFID tags, but it has been made clear that none of these problems are serious:

a) RFID tag viruses: Unauthorized code is written into writable memory storage areas of RFID tags to invite SQL injection attacks. Databases are infected with the virus when the code is read by tag readers/writers.

* There are many means of protecting against these viruses, such as bound checks, disabling backend scripts and parameter binding.

b) Immobilizer hacking: Wireless communication code used for electronic keys (immobilizers) to protect cars against theft is deciphered.

* This problem can be avoided by using electronic keys of sufficient lengths.

c) Analysis of electric power levels of RFID tags: Overloading logical circuits of RFID tags causes delays in the timing of sending back signals and weaken the frequencies sent back. These frequencies can be caught to interpret processed data.

* Although such analysis is logically possible, it would require enormous data and is not practicable.

2) New Technologies Related to Protection of Privacy

Table 2 shows different technologies for protecting privacy concerning RFID tags, arranged in a time sequence. "Blocker tags," "clipped tags," "variable secret ID methods" and "hash locks" shown in the table are explained in detail in the ECOM Activity Results Report for 2006. The following five technologies were newly developed in 2006:

a) ALOHA method: Random numbers are generated by RFID tags and these numbers are used by tag readers/writers as handle values to distinguish tags.

b) Restrictions on communication distances: RFID tags are provided with functions to make communication distances longer and shorter.

c) Hash chains: RFID tags are provided with hash functions, and when the tags are read, secret information on the tags is updated to generate secret IDs to be sent to the tags.

d) K-stage ID checking method: An ID is divided into K different parts to make it necessary to find solutions for all these parts. This method makes it impossible to provide links for third parties.

e) Secure RFID tags: These tags protect against wiretapping and spoofing by using MISTY, a code circuit that provides high levels of security and products that meet the C1G2 standard, which provides functions for encryption and mutual authentication.

(5) Issues about the Discarding of RFID Tags

According to an estimate about the amount of silicon used for IC chips for ordinary RFID tags, 10 million tags contain no more than one teacupful of silicon, which therefore involves no serious risk of harming the environment. However, considerable amounts of aluminum and copper are used as materials for antennas, and plastic is also used in a substantial amount for base films for RFID tags of certain types and sizes. It is generally recognized that it is necessary to check the effects of these materials on the environment.

1) Actual state of disposal of RFID tags

In Japan, disposal of RFID tags is causing problems in the process of recycling cardboard boxes. When packing materials and cardboard boxes used for delivery are melted together with RFID tags attached, metals used for antennas and IC chips of certain sizes and widths, detected by metal detectors at recycling factories, can cause the melting process to stop. Meanwhile, if they should be left undetected, there is a risk that they may be mixed into recycled products. Field trials are carried out using various types of tags to avoid these risks.

2) Laws and regulations regarding the disposal of RFID tags and measures for the future

Tags are seldom used or discarded alone. In most cases, they are discarded attached to products or packages. There are regulations concerning products and packages delivered with RFID tags attached. Since existing recycling laws concerning "containers and packing materials," "home appliances," "construction materials," "food" and "automobiles" provide standards for discarding products, tags that are discarded attached to these products need to be disposed in accordance with these laws.

Until RFID tags come to be used in a wide range of fields, we need to take measures to avoid the situation where RFID tags are used as a negative criterion for "green purchases" (giving priorities to purchases of products that are less harmless to the environment than others), as with polyvinyl chloride that was used as a negative criterion for selecting materials for products. To achieve our purpose, we need to continue to send our messages to various groups. It is therefore of great importance to gather data that provide grounds for our messages.

(6) Revising the Guidelines for Companies on the Protection of Consumers in the Use of RFID Tags

As we mentioned at the beginning of this paper, there was a need to make revisions, including changes to terms and expressions, to the "Guidelines for Companies on the Protection of Consumers in the Use of RFID Tags" for 2004. We therefore drew up new guidelines for 2006, bearing in mind various changes in the environment, including new JIS standards and new rules.

(7) Reporting on the Results of our Activities at an ECOM seminar

To summarize the activities over the past three years and to conclude the project concerning the social acceptability of RFID tags, members of the working group presented lectures on the following four subjects to discuss the theme "RFID Tags and the Protection of Privacy at Contact Points with Consumers."

1) The meaning of protection of privacy in the use of RFID tags

2) RFID tags and methods and techniques for protecting privacy

3) Consumer education required for promoting the use of RFID tags

4) Presentation on the website, "Introduction to RFID Tags for Beginners"

Future Work Items

Activities of the working group aimed at promoting social acceptability of RFID tags are concluded in 2006. We will increase our focus on activities aimed at promoting the use of RFID tags and raising the public awareness about RFID tags by using websites and flyers. However, since the theme about RFID tags and social acceptability covers a wide range of fields, basic problem remains the same, although the focus of our activities shifts to the field of protection of personal information and information security.

Table 2. Technologies for Protection of Privacy

Past	Present	Future
No special mechanisms are needed.	Technologies have evolved this far.	Technologies will continue to evolve.
• Blocker tags • Clipped tags	• Variable secret ID method • ALOHA method • Restrictions on communication distances	• Hash locks • Hash chains • K-stage ID checking method • Secure RFID tags

RFID Tag International Standardization Support Team

Kazuhiko Wakaizumi, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Support Team

Overview of Activities

To create an efficient system of supply chain management and ensure traceability of commodities in contemporary society, where commodity distribution networks spread across countries through international economic activities, RFID tags written in other countries should always be readable in Japan, and tags written in Japan should also be readable in other countries of the world.

To assure the readability of RFID tags, interfaces for tag-related hardware (including tag readers/writers) and data formats of information written onto tags need to be made according to internationally agreed standards.

EPCglobal is an organization that develops and establishes de facto international standards about RFID tags among users, and to cooperate with the activities of the organization, ECOM is working as a member of the joint office for the EPC-RFID-Forum organized by the Distribution Systems Research Center (GS1 Japan). ECOM held a meeting for the forum on July 21, 2006.

To settle conflicts of interests between countries and to promote the use of RFID tags in developing countries, it is also important to develop de jure standards.

For this reason, ECOM has worked in cooperation with the Japan Electronics and Information Technology Industries Association (JEITA)-the Secretariat of the Japan Review Committee of ISO/IEC JTC1/SC31, which is in charge of the standardization of AIDC (automatic identification and data capture techniques) including RFID tags-to join working group 2 (WG2), which is in charge of data structures, and working group 4 (WG4), which is in charge of tags.

To use RFID tags to manage supply chains and establish traceability of commodities, specifications of tags attached to distributed products, wrapping and packaging materials, freight containers and transportation devices must all conform to unified standards. A joint working group (JWG) was organized by ISO/TC104 (freight containers) and ISO/TC122 (packaging) to develop these standards. The Identification Standardization Committee organized by the Japan Automatic Identification Systems Association (JAISA) is in charge of reviewing these standards in Japan. ECOM has also been working as a member of this committee to participate in the discussions about what standards should be adopted for RFID tags used as information media across different countries, areas and companies, and to make examinations to help establish standards that can be adopted and effectively implemented by Japanese industries.

Activity Results

(1) Activity Results of ISO/IEC JTC1/SC31/WG2

To use RFID tags for a wide range of business purposes and in all stages of product life cycles, Japan proposed a system for uniquely identifying objects such as materials, parts, final products and wastes in "ISO/IEC 15459 Part 4." These standards have already been adopted as international standards. Mr. Toshihiro Yoshioka (Representative Director and President, AI-Research Institute, Inc.) is now working as the chairman of ISO/IEC JTC1/SC31/WG2 and taking a leading part in the group.

Meanwhile, products are managed not only on an individual basis, but sometimes on a production-lot basis to control their qualities and ensure safety. Japan proposed "ISO/IEC 15459 Part 6" last year to secure traceability of those products that are managed in batches. For example, to control the quality of sake brewed in large barrels and sold in small bottles, it is more reasonable to manage the product by allocating a unique identifier (such as a lot number) to each barrel rather than each bottle.

These standards will play an important part when identifying products (such as pharmaceutical products, processed food, perishable food and industrial products containing chemical substances that may have harmful effects on human bodies) on a production-lot basis (or in batches) to check their materials, manufacturing processes and qualities.

Kazuhiko Wakaizumi (the writer), Research Director of ECOM, is working as the project editor of ISO/IEC 15459 Part 6 to draw up a draft, organize comments made by each national bodies at the time of voting and incorporate these comments into the draft. The final voting (voting on the FDIS) started while I was writing this paper.

(2) Activity Results of ISO/IEC JTC1 SC31/WG4

Working group 4 is working to establish a wide range of standards concerning RFID tags. The most important achievement of the working group for last year was that "EPCglobal Class 1 Generation 2" was adopted as "ISO/IEC 18000 Part 6 Type C."

In 2006, as discussions on commercialization of RFID tags revealed the need for choosing between a 13.56 MHz frequency (HF band) and an UHF-band frequency depending on the nature of commodities and products that carry RFID tags, the working group started on reviewing ISO/IEC 18000 Part 3 Mode 3, which has a memory structure (Figure 1) similar to ISO/IEC 18000 Part 6 Type C, to respond to the need.

Tag readers/writers will have to be able to accept two different frequencies to meet the need. Nevertheless, establishing unified standards for memory structures will no doubt contribute greatly to reducing the burdens of applications.

(3) Activity Results of ISO/TC104-ISO/TC122 JWG

The joint working group is reviewing the following five standards that are entitled "supply chain applications of RFID":

1) ISO 17363, freight containers: Standards concerning "container tags" of ISO 10374 is incorporated. ISO/IEC 18000 Part 7 (433 MHz) is adopted for RFID tags.

2) ISO 17364, pallets, transport boxes and other returnable transport items: ISO/IEC 15459 Part 5 or GRAI of GS1 is incorporated. ISO/IEC 18000 Part 6 Type C or Part 3 Mode 3 is adopted for RFID tags.

3) ISO 17365, transport units: ISO/IEC 15459 Part 1 or SSCC of GS1 is incorporated. ISO/IEC 18000 Part 6 Type C or Part 3 Mode 3 is adopted for RFID tags.

4) ISO 17366, product packaging: ISO/IEC 15459 Part 4 or SGTIN of GS1 is incorporated. ISO/IEC 18000 Part 6 Type C or Part 3 Mode 3 is adopted for RFID tags.

5) ISO 17367, product tagging: ISO/IEC 15459 Part 4 or SGTIN of GS1 is incorporated. ISO/IEC 18000 Part 6 Type C or Part 3 Mode 3 is adopted for RFID tags.

Voting on the draft IS (DIS) of these standards had finished when I wrote this paper. The final voting and the issuing of the standards will follow the issuing of ISO/IEC 18000 Part 3 Mode 3 quoted above. As various RFID tags will be commercialized in the future, establishing these unified standards for specifications of RFID tags that will be used across different countries, areas and companies will no doubt relieve the anxiety of users about making redundant investments and help promote the use of RFID tags.

Future Work Items

ISO/IEC JTC1/SC31/WG2 is working to establish standards that will serve as bases for carriers for data including linear bar code and two-dimensional symbols, while ISO/IEC JTC1/SC31/WG4 is working to establish standards specific to RFID tags. As a result, standards concerning data formats specific to RFID tags are included in ISO/IEC 15961 and 15962 (standards for rules about how to store data in RFID tags, which were drawn up by WG4/SG1), leading to inconsistencies with the standards developed by ISO/IEC JTC1/SC31/WG2. Fortunately, however, ISO/IEC 15961 and 15962 are now being revised to meet the standards for memory structures defined in ISO/IEC 18000 Part 6 Type C. We are planning to seize the opportunity to improve the level of coordination between WG2 and WG4/SG1 and develop unified standards for data structures of RFID tags and other AIDC media.

There is also a need to establish standards about middleware that are being developed as ISO/IEC 24791, and we will take an active part in establishing these standards through discussions on Part 1 for which Japan is working as the project editor. Through these activities, we will work to establish international standards in order to create an environment for the coming age of widespread use of RFID tags, where commercialized products will be manufactured according to ISO standards and tags written by readers/writers manufactured by a certain maker can always be read with readers/writers which are produced by any makers.

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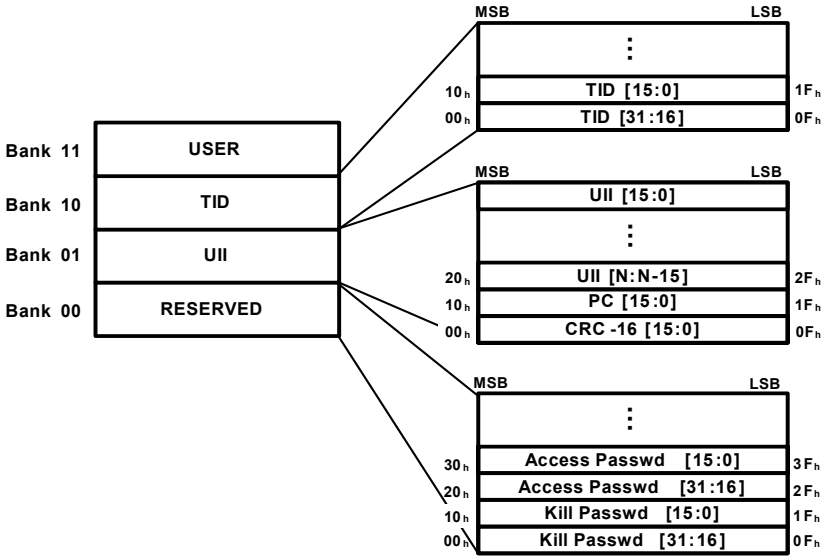

Figure 1. Memory Map of an RFID Tag (ISO/IEC 18000 Part 6 Type C)

RFID Tag/Traceability Workshop

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Next Generation Electronic Commerce Promotion Council of Japan

Workshop

Overview of Activities

RFID tags cannot perform important functions unless they are used in conjunction with computer systems, EDI networks or electronic commerce systems. Four workshops were held to discuss "how to promote electronic commerce" by using RFID tags to share information on the movement of commodities among groups that differ in business customs.

We invited experts in various fields to present lectures at these workshops, and after these lectures, workshop members entered into free discussions about topics such as "policies on RFID tags," "how to use RFID tags for total supply chain management," "how information required for business operations is stored on RFID tags and passed on" and "what problems are involved in the use of RFID tags" (Table 1). We held lectures and discussions about policies on RFID tags and the use of RFID tags in recycling societies at the first workshop, and lectures and discussions about the use of RFID tags in supply chains ("arteries" of recycling societies) in the manufacturing industry and the use RFID tags by manufacturers in sales of electric appliances at the second workshop. At the third workshop, we adopted a different perspective and held lectures and discussions about how e-commerce and EDI are related to distribution of commodities. At the fourth workshop, we held a lecture and discussions about recycling and disposal of RFID tags ("veins" of recycling societies).

Activity Results

First Workshop (July 28, 2006)

We chose "How to Promote Electronic Commerce by Using RFID Tags" as the theme of the first workshop. We invited experts to present lectures on the "Policies on RFID Tags for the Current Year" and "How We Can Use RFID Tags for Total Supply Chain Management (Manufacture, Maintenance and Recycling) in Recycling Society," and held free discussions following these lectures.

Lecture 1-1: Trends in Policies on RFID Tags for the Current Year[*1]

[Summary of the Lecture]

We requested the lecturer to present the outline of the RFID tag projects of the Ministry of Economy, Trade and Industry over the past years and explain briefly about the following projects for 2006: (1) Field trials aimed at establishing international standards for middleware used to resolve differences in RFID tag systems; (2) field trials aimed at testing a system of multiple codes and RFID tags used to ensure interoperability between mutually incompatible code systems and developing new technologies; and (3) a project for developing systems to ensure compatibility with existing tags and meet the growing need for security

Lecture 1-2: Field Trial in Total Traceability Management in the Electronic and Electric Appliance Industry Using RFID Tags[*2]

[Summary of the Lecture]

The following subjects were discussed in the lecture: The purpose (creating a recycling society) of the "Field Trial in

Table 1. RFID Tag/Traceability Workshop

Workshop	Date
Description of activities	
First	July 28, 2006
Lecture 1-1: Trends in Policies on RFID Tags for the Current Year Lecture 1-2: Field Trial in Total Traceability Management in the Electronic and Electric Appliance Industry Using RFID Tags	
Second	October 19, 2006
Lecture 2-1: Field Trial in the Use of RFID Tags in Supply Chains between Japan, China and South Korea Lecture 2-2: Guidelines on Standard Procedures for Using RFID Tags in Consumer Electronics	
Third	December 7, 2006
Lecture 3-1: Trends in EDI Distribution and the Role of IT Lecture 3-2: RFID Projects in the Nippon Yusen Group	
4th	March 6, 2007
Lecture 4:	Recycling of Electric Appliances

Total Traceability Management in the Electronic and Electric Appliance Industry Using RFID Tags" conducted as part of the METI RFID Tag Field Trial Project for 2005; advantages of using RFID tags; information stored on RFID tags; manufacture and maintenance of tags; business models for the recycling of tags; specific measures for ensuring the reliability and performance of tags; economic effects (investment effects); and testing of the effects of total traceability management.

[Free Discussions]

In the free discussions, workshop members discussed the following issues to consider how to use RFID tags in total traceability management (especially in BtoB transactions) in the future: How to use tags to identify commodities (products and parts); how to attach tags to replacements (regular products and substitutes); information stored on tags and their memory capacity; reliability of tag information; continuity in tag systems; and business schemes.

The discussions were focused on the following topics: (1) Whether it is possible to create a viable business model by connecting manufacture, maintenance and recycling in a time sequence; (2) Whether it is possible to identify parent-child relationships between products and their parts by attaching RFID tags to different commodities and (3) Who should write what information onto RFID tags and when.

Second Workshop (October 19, 2006)

At the second workshop, we held lectures and discussions about how RFID tags can be used to supply parts in international systems of manufacture and distribution (supply chains) and how RFID tags can be used for sales of products.

Lecture 2-1: Field Trial in the Use of RFID Tags in Supply Chains between Japan, China and South Korea[*3]

[Summary of the Lecture]

The following subjects were discussed in the lecture: The purpose of the "Field Trial in the Use of RFID Tags in Supply Chains between Japan, China and South Korea" conducted as part of the METI RFID Tag Field Trial Project for 2005; fields chosen for the field trial (in Japan, South Korea and China); conditions of the trial; important points to remember when drawing up trial plans; traceability of product qualities; product management on a serial-unit basis; measurement of operation time; outline of the system used in the field trial; utilization environments; and estimates of returns on investments.

[Free Discussions]

In the free discussions, workshop members discussed the following issues: Unexpected effects of RFID tags; middleware used in the trial; advantages of using RFID tags in international systems of manufacture and distribution; operations for linking commodities and transport materials; advantages of replacing bar codes with RFID tags; measures for unreadable tags; read accuracy; discrete manufacturing in Asia, China and ASEAN countries; access control for shared use of tags by different companies; problems encountered in system development; and connections with existing systems in organizations.

The discussions were focused on the following topics: (1) Importance of establishing connections between information obtained from different manufacturing sites (management information on serial units); (2) operations that are not supported by existing middleware, such as identification of parent-child relationships between products and their parts and operations for linking commodities and transport materials; and (3) information that needs to be written in user areas (such as lot numbers, serial numbers, maintenance information, how many times products have been reused).

Lecture 2-2: Guidelines on Standard Procedures for Using RFID Tags in Consumer Electronics[*4]

[Summary of the Lecture]

The following subjects were discussed in the lecture: Details about the foundation of the Consumer Electronics RFID Tag Consortium in 2005; relationships of the Consortium with EPCglobal and the ISO; activities of the Consortium; formulation of operational guidelines (the first version drawn up in June 2006); proposals of international standards; situations of utilization of RFID tags and their advantages; costs involved in the use of tags; data systems coexistence of systems and transition between systems; and problems and activities for the future.

[Free Discussions]

In the free discussions, workshop members discussed the following issues: Guidelines about how to bear the costs involved in the use of RFID tags; user charges for the costs; expansion of the frequency range; connection with the METI field trials; uses of tags in international sales (certification of origin); and uses of tags for products other than electric appliances (department stores, books, apparel, food, etc.).

The discussions were focused on the following topics: (1) User charges for the running costs required for maintaining tag systems on a permanent basis; (2) business standards as to whether to write information onto RFID tags or to store information on servers; and (3) problems involved in the coexistence of systems and transition between systems. It was pointed out that products manufactured in process industries (such as steel, chemicals and food products) change their natures when materials are boiled, burnt or mixed with other materials and that there are differences with products manufactured in assembly industries (such as electric appliances).

Third Workshop (December 7, 2006)

We selected topics other than RFID tags for the third workshop and held lectures and discussions about "how information required for business operations is stored on RFID tags and passed on" and "what problems are involved in the process."

Lecture 3-1: Trends in Distribution EDI and the Role of IT[*5]

[Summary of the Lecture]

The following subjects, all related to the Project for Standardization of Distribution Systems, were discussed in the lecture: Next generation EDI (ideals for the retail industry and significance and roles of next generation EDI); EDI via the Internet; standardization of EDI; infrastructures to be achieved in the Distribution SCM Project; guidelines on the operations of the next generation EDI[*5]; activities for the future; preparations for implementing the standards for the next generation EDI; and how to increase the number of users of EDI and promote its use.

[Free Discussions]

In the free discussions, workshop members discussed the following issues: Problems of the next generation EDI; connections between systems in different industries; standardization of information entities; possibility of transition from existing systems; conversion of code systems between manufacture and distribution; what percentage of the population is using EDI at present; and use of XML.

The following observations were made in the discussions: (1) We are faced with a serious problem with how to convert orders of retailers into manufacturers' codes; (2) Manufacturers prefer their own codes to others; (3) Each company is using an internal code of its own to manage its business operations; (4) The flow of information is discontinued where commodities are exchanged for money (due to various conditions including terms of contracts); (5) At present, few users are using EDI from placing orders through to billing and payments. In the next generation EDI, we need to provide information on payments for commodities received; (6) It is difficult to exchange information where there is no mutual trust.

Lecture 3-2: RFID Projects in the Nippon Yusen Group

[Summary of the Lecture]

The Nippon Yusen Group (Monohakobi Technology Institute), which is conducting international distribution business using 1.5 million RFID tags, presented a lecture to discuss the following subjects: Challenges for international distribution companies; support to meet the changing needs in the international commercial distribution model (changes in manufacturing branches and changes in distribution systems); intermediary transport material management business; RFID tag systems; changes in distribution sites brought about by RFID tags; and the group's contributions to international standardization activities (activities in the EPCglobal distribution section).

[Free Discussions]

In the free discussions, workshop members discussed the following issues: Differences in characteristics between countries and regions; methods of managing codes; development of transport material management business; utilization of OCR videos; IC seals; transshipment of domestic commodities; and methods of collecting transport boxes (transport materials).

The discussions were focused on the following topics: (1) State of activities concerning international standards; (2) methods for managing intermediary transport materials (including transport boxes) and the need for RFID tags; (3) methods of linking transport materials and commodities (cardboard boxes); (4) conversion between codes of manufacture and codes of distribution; and (5) use of OCR (videos), electronic seals and other multiple identification tools in conjunction with RFID tags.

Fourth Workshop (March 6, 2007)

In response to the lectures and discussions at the first workshop about the processes of manufacture, maintenance and recycling ("arteries" and "veins") in recycling societies, we held a lecture and discussions to consider what information should be passed on through these processes-especially through the "veins" (including recycling and disposal)-and how the costs involved in these processes should be borne.

Lecture 4: Recycling of Electric Appliances[*6]

[Summary of the Lecture]

The following subjects concerning recycling of electric appliances were discussed in the lecture: Outline of the Electric Appliance Recycling Act; reasons for enacting the law (local governments have been in charge of the disposal of electric appliances, but the quantities for disposal are enormous and discarded appliances can be reused as resources in many cases); basic knowledge of the law (such as target appliances and resale of discarded products); reexamination of the Electric Appliance Recycling Act; problems (such as invisible flows of commodities and illegal dumping); relationship with RFID tags (how to trace discarded products, exportation of used products, etc.); and electric appliance recycling tickets and recycling operations.

[Free Discussions]

In the free discussions, workshop members discussed the following issues: Flows of products in recycling; method of payment of recycling charges; advance payments to be made at the time of purchase; trends in other industries; current trends; issuing of recycling tickets and input of information on recycling tickets; and utilization of RFID tags.

The discussions were focused on the following topics: (1) At which point do flows of discarded electric appliances disappear?; (2) How do we keep track of recycling tickets themselves?; (3) Problems about the existing methods of payment of recycling charges; (4) Trends toward recycling in the future; and (5) How can we use RFID tags to create a recycling society?

Summary

While the RFID Tag Field Trial Project and other projects for technological development supported by METI have greatly helped spread the use of RFID tags, their use is still limited to companies and certain groups within companies.

We discussed "what we should do to promote electronic commerce" at the fourth workshop. The following remarks provide a summary of what was revealed through the seven lectures given by experts in the respective fields and the serious discussions by workshop members:

1) Although field trial projects have paved the way for the use of RFID tags in total supply chain management, a general consensus has yet to be achieved in each industry as to who should write what information onto RFID tags and when. It is especially important to clearly define what needs to be tagged.

2) By attaching RFID tags to a wide range of commodities, we will be able to check information on products (including their histories) that are used as tools for reading and writing data in actual business situations based on data about parent-child relationships between products and their parts.

3) At distribution sites, links between commodities and transport materials are created in various places. Therefore, there is a need to define operational models and business standards to regulate these procedures as well.

4) At present, use of EDI is limited to exchange of information about acceptance and placement of orders in most cases. There is a need to spread the use of RFID tags so that the next generation EDI may be used for a wider range of purposes, including accepting incoming commodities as well as inspecting and checking commodities received.

5) To use RFID tags between different companies, we need to take account of internal codes (unique codes) managed by existing company systems and develop methods of sharing information in common without losing compatibility with existing systems, and transferability, extendibility and reliability of data.

6) We would be well advised to strive to achieve partial optimization instead of total optimization by promoting the use of RFID tags only in areas where there is a demand for them, and to expand their use to include transactions across different organizations in the next step.

7) To protect the global environment, we need to improve the durability of RFID tags to match the operating lives of products for the purpose of recycling them. At the same time, we need to be able to trace the flow of recycled products as well.

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<Information on Topics Other than the Lecture Themes>

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Personal Information Protection WG

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Working Group

Overview of Activities

Bearing in mind that this is the second year since the Personal Information Protection Law (hereinafter, the "Protection Law") was enacted, our working group drew up guidelines for small-sized EC businesses, conducted research on trends concerning the protection of personal information in overseas countries and made a visual inspection survey on websites to check what measures are taken to protect personal information (continued from the previous year). We will summarize these activities for FY 2006 below. Table 1 provides an outline of the activities of the working group.

Activity Results

(1) Drawing up and Issuing Guidelines on Personal Information Protection for Small-Sized EC Businesses

1) Background

The results of a questionnaire survey on "Major Issues Concerning the Protection of Personal Information," published by the Cabinet Office last November, suggest that there are differences in measures adopted to protect personal information between companies of different sizes. The following observations were made by some of the respondents of the survey:

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

Category	Meeting	Date
	Description of activities	
WG	First Meeting	July 11, 2006
	Examination of the current status of implementation of the Personal Information Protection Law.	
WG	Second Meeting	August 29, 2006
	Examination of guidelines on personal information protection for small-sized EC businesses.	
WG	Third Meeting	September 27, 2006
	Research on trends in other countries concerning the protection of personal information	
TF1	15th Meeting	October 13, 2006
	ECOM Seminar: To Review and Reorganize Personal Information Protection Systems	
WG	Fourth Meeting	November 7, 2006
	How do we implement the C (check) in a PDCA cycle? (Discussions)	
WG	Fifth Meeting	December 1, 2006
	Examination of revisions to the Guidelines on Personal Information Protection by the Ministry of Economy, Trade and Industry	
WG	Sixth Meeting	January 26, 2007
	Study on examples of effective measures to protect personal information	
WG	Seventh Meeting	February 26, 2007
	Goals for the Personal Information Protection Law (Discussions)	
WG	Eighth Meeting	March 26, 2007
	Goals for the Personal Information Protection Law (continued from the previous session)	

a) Measures taken by small- and mid-sized companies are inappropriate (due to shortages of people, resources and funds).

b) Companies that are exempted from the obligation to protect personal information (companies that handle personal information of less than 5,000 individuals) are also required to take measures to protect personal information.

c) There is a need to formulate appropriate rules that fulfill the needs of different industries and businesses of different types and sizes in order to encourage small- and mid-sized companies to take effective measures for privacy protection. We also need to provide up-to-date information on specific measures for protecting personal information.

Against this background, ECOM drew up guidelines on personal information protection for small-sized companies to help them develop effective systems for protecting personal information.

2) Precautions Taken When Drawing Up the Guidelines for Small-Sized EC Businesses and the Significance of the Guidelines

a) Precautions Taken When Drawing Up the Guidelines

When drawing up the guidelines, we focused primarily on online retailers engaged in SOHO business and tried to reduce the number of descriptions to a minimum in accordance with their business characteristics. We organized the basic knowledge and minimum obligations required for small-sized EC businesses into brief statements, and to provide active support for posting policies on the protection of personal information (privacy policies) on EC websites, we also created a sample of policy statements prepared for publication.

b) Significance of the Guidelines

- With the number of descriptions reduced to a minimum, the guidelines can provide vital clues for SOHO businesses to review and develop their own systems for personal information protection within a short period of time. The sample of policy statements will also help these businesses to formulate and issue their own privacy policies promptly.
- The guidelines include specific measures designed for small-sized EC businesses and incorporate best practices that are superior to the provisions of the Protection Law, including the requirement to disclose how personal information was obtained. Therefore, the guidelines will help these businesses enhance their credibility and improve consumer confidence.

- The guidelines are intended to be used not only by EC businesses, but also by small- and mid-sized companies that have not yet made their privacy policies open to the public and to provide them assistance in examining measures to protect personal information and issuing privacy policies of their own.

Due to space limitations, we did not include the guidelines or the sample of privacy policy statements in this paper. These materials are available on the following website:

http://www.ecom.jp/press/2006_003/Guideline.pdf

3) Afterthoughts

After drawing up the guidelines, we visited some organizations for small- and mid-sized companies for advertisement purposes, and during one of those visits, we received the following comment from a member of an organization: "We have been waiting for guidelines like these (for small businesses) for a long time. We wish these guidelines had been available two years ago (at the time when the Protection Law was enacted)..." This comment made us realize once again the difference in business capacities between major companies and small- and mid-sized companies. While many government organizations are now working to draw up guidelines for individual business areas, an even more extensive range of schemes seem to be required to raise the awareness of small businesses about privacy protection.

(2) Research on Trends Concerning the Protection of Personal Information in Overseas Countries

1) Background

Whether they like it or not, an increasing number of companies in Japan are faced with a risk that personal information may flow out of the country as economic activities spread across borders. Companies that intend to branch out into overseas markets or outsource their work to offshore contractors are bound to be affected by privacy protection legislation in overseas countries. Even just to review the rules regarding the protection of personal information in Japan, it is important to be well informed of laws and regulations in other countries. The Personal Information Protection Committee of the Quality-of-Life Council, which is supervised by the Cabinet Office, is aiming to examine global trends concerning privacy protection in upcoming sessions with a view to making amendments to the Protection Law. ECOM has conducted research on current regulations and trends in overseas countries concerning privacy protection, and we would like to present some of the information we obtained about various regions. Table 2 provides a comparison of regulations between major countries and Japan for the reference of the reader.

2) Trends Concerning the Protection of Personal Information in the EU (European Union)

We cannot discuss trends in other countries concerning the protection of personal information without mentioning the EU Data Protection Directive (official title: the Directive 95/46/EC of the European Parliament and Council on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of Such Data).

Table 2. Comparison of the legal frameworks for Protection of Privacy

	EU Countries	The United States	Canada	BRICs	Australia	Argentina	Japan
Existence of comprehensive protection laws targeted at the private sector	Exist	None	Exist	None (except for Russia)	Exist	Exist	Exist
Existence of independent supervising agencies	Exist	None	Exist	None	Exist	Exist	None
Characteristics of the protection law							
• Definition of personal information			Business card information exempted				
• Conditions for exemption					Companies with sales less than a certain amount		Companies that handle data of less than a certain number of individuals
• Provisions concerning highly sensitive information	Exist		Exist		Exist	Exist	None
• Provisions concerning cross-border transmission of information	Exist				Exist	Exist	None
Related rules and regulations		• A large number of regulations in each business segment • Regulations concerning protection of children • Data Breach Notification Laws					
Adequacy with the EU Directive	Adequate	Laws are inadequate to the EU Directive, but there are exceptions for Safe Harbor agreements.	Adequate			Adequate	

While the directive, which was adopted in 1995, defines a wide range of rules concerning the protection of personal data for EU countries to observe, major goals of the directive consist of the following three:

a) To establish rules to protect personal data across the entire range of the government and private sectors

b) To create independent supervising agencies which specialize in the protection of personal data

c) To prohibit personal data from being transmitted to third countries that have not introduced necessary measures for data protection

Most of the EU countries have adopted laws specifically aimed at protecting personal data since around 1980, and have been working in recent years to organize those laws into a coherent system by making amendments to meet the requirements of the EU Data Protection Directive. Many countries have adopted reporting systems for the handling of personal data, requiring organizations to report the contents of databases and means of protecting data to supervising agencies before using the data and to respond promptly to complaints about breaches of rules regarding the protection of the data. There is also a need to pay particular attention to so-called "highly sensitive data" concerning races and religions, since acquisition of these data are strictly regulated.

3) Trends Concerning the Protection of Personal Information in the North American Region (the United States and Canada)

a) Trends Concerning the Protection of Personal Information in the United States

The United States, which adopts self-regulation as its basic principle, is the only advanced country that has not introduced comprehensive legislation for information protection targeted at the private sector. However, it would be wrong to assume that there are no regulations or that these regulations are few in number in the United States. There are in fact a large number of laws to protect personal information in each business segment, including laws concerning unique business areas, such as the Video Privacy Protection Act, found in no other country, which protects users from abuse of records on purchase and rental of videos. The Children's Online Privacy Protection Act, which imposes restrictions on obtaining personal information from children under 13 years of age, is also unique to the United States. Data Breach Notification Laws (general title for laws that are enacted in 26 states) indicate important recent trends in the United States. These laws require companies that possess and manage personal data of individuals to notify these individuals immediately if it should be discovered that the databases containing these data are destroyed, accessed by unauthorized users or missing. Encrypted data that are exposed to these risks are exempted from these laws, which are epoch-making in that they provide legal support for measures to encrypt data. Preparations are currently being made to make these laws into a federal law, and it won't be long before these laws will be enforced throughout the country.

b) Trends Concerning the Protection of Personal Information in Canada

While Canada shares the border with the United States, it is closer to EU countries in terms of the rules about the protection of personal information (for example, it has a comprehensive protection law and specialized supervising agencies). A notable point about the privacy legislation in Canada is that business card information (such as one's place of work, job title, business address and telephone number) is exempted from the provisions of the "protection law." In this respect, it is different from the law of Japan, which protects "all information that can be used to identify individuals." In a certain sense, it is reasonable to make a distinction between business card information that individuals willingly disclose in their business activities and credit card information that they take care not to disclose.

4) BRICs countries

a) Trends Concerning the Protection of Personal Information in Brazil

While there are no comprehensive laws specifically aimed at protecting personal information in Brazil, an extensive range of rights of consumers are recognized by the Consumer Protection Law enforced in 1990. The law recognizes the right of consumers to request disclosure of sources of personal information (laws in Japan do not require companies to disclose sources of information). It also contains strict provisions that make it obligatory to revise information of an individual within five days after receiving a request for the revisions from the individual.

b) Trends Concerning the Protection of Personal Information in Russia

In Russia, the "Federal Law on Information, Informatization and the Protection of Information," which is already enacted, is considered to be the comprehensive law for the protection of personal information. However, since detailed definitions of personal information and means of protection remain unclear, the law provides no more than a basic conceptual framework. The facts that personal information that are not allowed to be sold is actually available on the Russian market and that few websites in Russia provide privacy policies lead us to conclude that Russia is lagging far behind other advanced countries in the protection of personal information.

c) Trends Concerning the Protection of Personal Information in India

In India, which is growing into a major base for outsourced work from overseas companies, there is a growing awareness about the need for privacy protection, and the legislation for information protection is being examined based on a model of the data protection law of the United Kingdom. If it takes too long before a comprehensive law is enacted, there may be a need to conclude with India the Safe Harbor agreement maintained between the United States and the EU (rules to allow U.S. companies that are implementing data protection measures in accordance with the EU Directive and are registered with the U.S. Department of Commerce to transfer personal data from the EU to the United States), but the prospects are as yet unclear.

d) Trends Concerning the Protection of Personal Information in China

Regulations on the Internet and the legal environment in China are represented by the expression "cautious liberation." There is a growing interest in privacy protection against the background of a rapidly increasing Internet population, and China is taking an active part in drawing up the privacy framework in APEC, with its representative working as a Joint Vice-Chairman in the Electronic Commerce Steering Group. Comprehensive legislation to require private companies to protect personal information is also being examined.

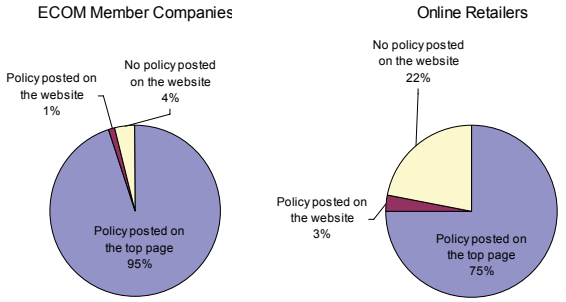
e) Trends in the Future

As we already mentioned, privacy legislation and organized actions for the legislation started in EU and North American countries in the middle of the 1990's. There are also countries outside the EU and North America, such as Australia and Argentina, that are working to introduce effective measures for privacy protection. In recent years, a second group of countries including BRICs have started to introduce initiatives of their own. At any rate, drastic changes are likely to occur in this field in the future, and these changes are expected to have considerable effects on the amendments to the legislation in Japan as well.

(3) Results of the Visual Inspection Survey on Websites Concerning Privacy Measures

ECOM carried out the same visual inspection survey as the previous year on websites to check what measures are implemented to protect personal information (from April 2006 through May 2006). The survey was targeted at 162 ECOM member companies (mostly large-sized companies) and 235 online retailers (mostly small-sized SOHO businesses) that have obtained online trust marks. Let it be noted that the retailers selected for the survey, which have all obtained online trust marks, are estimated to be far more sensitive to compliance with regulations than ordinary businesses of the same size. We will make comparisons concerning some items below.

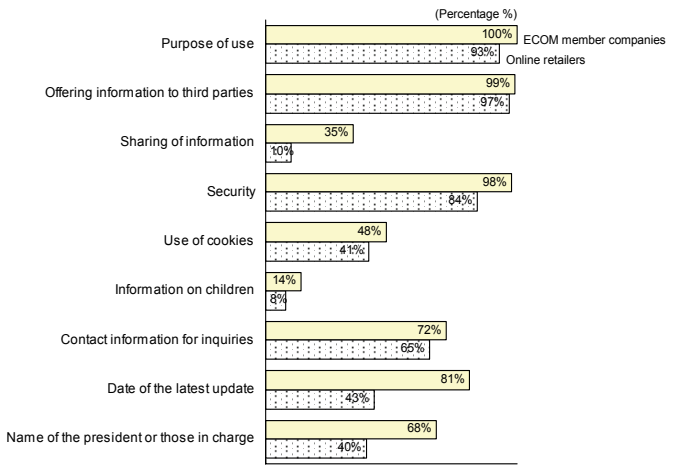
1) Companies That Are Posting Their Privacy Policies on Their Websites



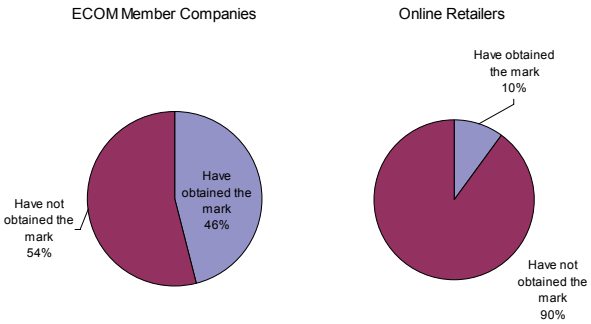
The percentage of companies that were posting their privacy policies somewhere on their websites was 96% among ECOM member companies and 78% among online retailers. We would like to request all online retailers, who face consumers directly via the Internet, to post their privacy policies on their websites.

2) Contents of Privacy Policies

The purpose of use of information, whether or not information will be offered to third parties, and matters related to security were among the most often items contained in privacy policies, regardless of the size of the company. Provisions about "shared use" and "information on children" were not mentioned very often. Considerable differences were observed with regard to these provisions between ECOM member companies and online retailers, but these differences are likely to have been caused by the difference in the characteristics of business. We had expected more companies to provide contact information for inquiries and dates of the latest updates.



(3) Percentage of Companies That Have Privacy Marks



(Related Companies Included)

There was a large increase last year in the number of companies that have obtained privacy marks, and similar tendencies were observed among ECOM member companies and online retailers (an increase from 35% (46 companies) to 46% (74 companies) among ECOM member companies, and an increase from 2% (5 companies) to 10% (24 companies) among online retailers). These findings suggest that there is a growing interest in privacy marks among network retailers, which leads us to expect further increases in the future.

Summary

It has been nearly two years since the Protection Law was enacted. Systems for the protection of personal information have been greatly developed due to the continuous business efforts made by companies that handle personal information. However, comments made by members of various sectors in response to the questionnaire on the "Major Issues Concerning the Protection of Personal Information" by the Cabinet Office suggest that there are many problems that have yet to be resolved. The current Protection Law, which contains no provisions about the international transfer of personal information, is considered as "inadequate" by EU countries that have adopted advanced policies on the protection of personal information. The fact that all related groups in Japan are making preparations to complete the legislation on privacy protection in the coming 2007 is encouraging, and ECOM intends to step up its efforts to take up the challenge.

Electronic Signature WG

Yoji Maeda, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

As the use of electronic commerce expands through information networks, we are increasingly faced with a serious challenge as to how we can secure security and safety. Electronic signatures can provide means of ensuring security for business partners (by detecting spoofing and tampering with data and by preventing false repudiation). Therefore, electronic signatures, used based on a public key infrastructure (PKI), play a crucial role in electronic commerce. However, despite the fact that technologies and environments suited to using electronic signatures are already available, they have only begun to be used in Japan in GtoB transactions in accordance with the development of electronic government services. While they are beginning to be used in BtoB transactions in some industries, they show no signs of rapid growth. Electronic signatures are seldom used in BtoC or CtoC transactions, although trouble concerning electronic signatures is often reported in these transactions.

We held nine working group meetings in FY 2006 to explore the following three topics: First, we carried out a survey on the use of PKIs in financial institutions in Japan to examine how PKIs are used in these institutions and what opinions are held about the use of PKIs. Secondly, we carried out a survey on the use of PKIs in overseas countries, with a particular focus on electronic signatures, by using existing reports and information provided on the Internet. Thirdly, we commissioned the Faunhofer Institute, a prominent institute in Germany, to carry out a "Survey on the Use of PKIs and Certificates in Europe."

The ECOM Activity Results Report for FY 2006 is composed of the following two parts:

- First Part: Survey on the Use of Electronic Signatures in Overseas Countries
- Second Part: Survey on the Use of Electronic Signatures in the Financial Industry (in Japan)
- Appendix: Survey on the Use of PKIs and Certificates in Europe

Activity Results

(1) Survey on the Use of Electronic Signatures in Overseas Countries

Technologies for electronic authentication and signatures, which are used in e-commerce and e-application as means of authenticating individuals and preserving relevant documents, play crucial roles in contemporary society where the Internet is used across a wide range of areas. PKIs provide a fundamental base for electronic authentication and signatures.

Asian and Oceanic countries are making extensive use of PKI applications unique to each country. In South Korea, Singapore and Australia, in particular, the governments took the initiative in developing information infrastructures and introducing PKIs.

In the current survey, we focused on how electronic signatures are used in health care services, in the financial business, BtoB and BtoC transactions, and in government and public services to investigate characteristic applications in each area.

In the supply of IT applications in Japan, "fairness," "transparence of procedures" and "low prices" are emphasized from the perspective of accounting, whereas the emphasis is on "technological performance" and "speed" in South Korea. In the ECOM Activity Results Report, we will develop a vision for the development of PKIs in Asian and Oceanic countries and summarize recent trends in the use of PKIs in these countries.

Meanwhile, although a rapid growth in the use of electronic signatures has been predicted for many years in Europe, there are problems yet to be resolved to ensure interoperability between different systems, and which application fields require electronic signatures is still unclear. For these reasons, the percentage of users of electronic signatures generally remains low. Nevertheless, there are some advanced countries such as Estonia, a small country with a population of 1.4 million, where more than one million electronic certificates were issued for voting in a national election.

In Estonia, citizens who are 15 years or older and long-term alien residents are obligated to have Estonian ID cards, which contain national ID numbers and two kinds of public key certificates (for authentication and for signature). Each national ID number is composed of 11 digits allocated to a person soon after he/she is born. Data on citizens are managed by the government on a data conversion infrastructure (X-Road). People are allowed to access personal information and check who accessed what information using authentication functions provided by public key certificates.

X-Road is an infrastructure for data conversion developed by the Estonian electronic government, and has the following features:

- Supported by data transmission backbones that ensure safety
- Compatible with discrete information systems
- Uses public key infrastructures (PKIs)
- Provides access to government databases and information systems

- Keeps logs on purposes of use and users of personal data

Figure 1 shows the architecture of the data conversion infrastructure, X-Road.

Using Estonian ID cards in combination with X-Road brings the following benefits to the government and the people:

1) Benefits for the People

- The authentication function allows the Estonian people to use many applications safely on the Internet.
- X-Road removes the necessity for the people to re-enter data that have already been registered in the system.
- The people are able to check by themselves who accessed their personal data when.

2) Benefits for Government Officials

- Government officials are spared the need to deal with paper forms and the need to input figures written on forms into the system.
- Government officials are able to obtain information just by inputting national ID numbers.

(2) Survey on the Use of Electronic Signatures in the Financial Industry (in Japan)

In FY 2005, ECOM sorted out problems involved in the use of electronic signatures from a broad perspective and analyzed factors that have prevented their use. As the result, we were able to extract the following three major problems:

- Effects of investments in introducing the technology are difficult to assess, which makes it difficult to judge whether or not to introduce it.
- Complex operations are required to follow the strict rules about electronic signatures.
- There are no guidelines on the use of PKIs (or electronic signatures).

To overcome these difficulties, we drew up guidelines on the use of electronic signatures for each business area to present best practices.

In FY 2006, we carried out a survey to examine how electronic signatures were used in business activities in industries to support the guidelines drawn up as a means of promoting the use of electronic signatures and to choose cases that might serve as models for using them. Medical care services or the construction industry, where electronic signatures would be used for useful purposes, were proposed as possible candidates, but we chose the financial industry as the target of the survey in the final analysis. We chose the financial industry for the following reason: Since it is the economic hub of all industries, and also an industry which is deeply concerned with the lives of the ordinary people, use of electronic signatures and the promotion of their use in the industry will have widespread social ramifications.

Unfortunately, results of the survey suggest that the current financial industry does not have an active interest in using electronic signatures. For example, in our interview, we received comments from many people that they felt no particular need for electronic signatures in personal services, or that there were no legal obligations to use them. These comments represent a situation described in last year's ECOM Activity Results Report (problem factors: a. need, b. scope of application, c. regulations and policies, d. standardization and interoperability, e. safety and reliability, f. ease of implementation, g. ease of use and operability, and h. ease of maintenance), in which there is a problem with the "need" (motivation for introducing the technology).

(3) Survey on the Use of PKIs and Certificates in Europe

The major purpose of the survey was to formulate strategies for promoting the use of PKIs and assess their effects in Japan by investigating how they are currently being used and developed in Europe.

First, we analyzed various factors that are preventing the rapid spread of PKIs that have been predicted for many years in Europe. We then outlined initiatives, activities for standardization and research projects that were introduced to promote the use of PKIs in Europe, and summarized how application services are being implemented based on PKIs in European countries.

To understand and predict the socio-economic effects of electronic signatures and PKIs, it is of crucial importance to understand the general process of innovation. Therefore, based on Everett Rogers's theory of "Diffusion of Innovations," we examined the diffusion of services based on PKIs in society and among individuals.

Future Plans

We are planning to carry out case studies on the diffusion of electronic signatures and formulate specific proposals for the promotion of the use of electronic signatures in collaboration with many related organizations.

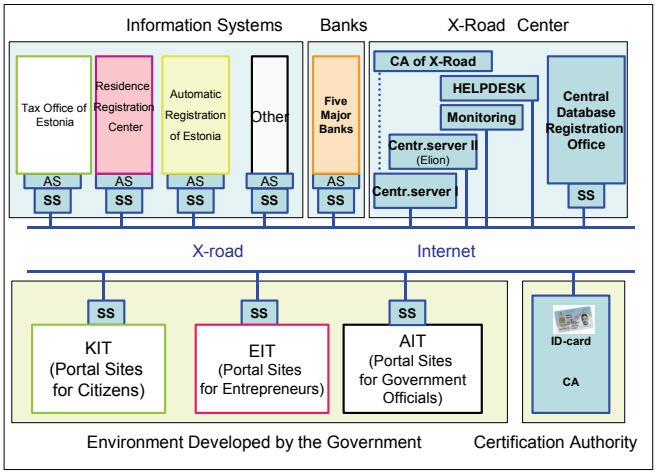


Figure 1. Architecture of X-Road

Long-Term Signature WG

Yoji Maeda, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

The E-Document Law, enacted in April 2005, allowed private companies to save documents such as tax records (papers and forms), which they had been obligated to preserve on paper, in digital format. Meanwhile, preserving data in digital format for a long period of time raises the possibility that those who use electronic signatures (signers) in documents and those who verify those signatures (verifiers) may be using different information systems. System vendors may be disallowed to implement non-standard systems, and if vendors should stop providing their services, users may be prevented from accessing document data that are preserved on a system.

To examine these problems, we conducted tests on the interoperability between different products in FY 2005. We drew up specifications for signature profiles and set down requirements to carry out the interoperability tests based on these specifications.

In FY 2006, we organized three sub-working groups to analyze the results of those trials, holding 12 working group meetings at intervals of once every three weeks. The sub-working groups achieved the following major results:

1) Two proposals for JIS standards were formulated and submitted to the Ministry of Economy, Trade and Industry.
2) A handbook on electronic signatures was published to promote the understanding of the standardization of electronic signatures.
3) We were able to examine comprehensive measures concerning visual readability and document formats required to preserve documents with signatures that are discussed in the J-SOX Act.

Activity Results

(1) Developing JIS Standards for Long-Term Signature Profiles

Most of the electronic signatures and time stamps that employ PKI (public key infrastructure) technologies to guarantee the authenticity of electronic documents are incapable of verifying signatures if public key certificates expire. The technology for "long-term" signatures, which allocates a new time stamp to a certificate before it expires, was developed to overcome this difficulty.

ECOM has carried out continuous research on the technology for "long-term" signatures since 2000, and finally succeeded last year in formulating the "CAdES Long-Term Signature Profile (Version 1.0)" and "XAdES Long-Term Signature Profile (Version 1.0)" based on TS 101 733 (CMS Advanced Electronic Signatures: CAdES) and TS 101 903 (XML Advanced Electronic Signatures: XAdES) that were defined by the European Telecommunications Standards Institute (ETSI). These profiles are appended to the ECOM Activity Results Report for last year.

"Long-term signature profiles" define requirement levels of the elements of CAdES and XAdES (such as whether the elements are mandatory or optional) and methods of interpreting ambiguous statements for "long-term signatures." These profiles are intended to be used for designing and implementing long-term signatures for general documents, contracts, electronic mail with signatures and downloadable files. Data for these profiles are assumed to be written in various formats, including PDF/A, XML and TIFF.

To promote long-term signatures, we worked to draft specifications for JIS standards with the aim of providing manufacturers with guidelines for ensuring system interoperability and users with standard formats for long-term signatures and guidelines for choosing products that are guaranteed to be interoperable with each other. These JIS standards will ensure interoperability between documents used with electronic signatures or time stamps, contributing to spreading the use of electronic documents and preserving these documents for long periods of time.

Although we used the "long-term signature profile" defined by ECOM last year (called the "ECOM profile" below to distinguish it from other profiles) as the base for drafting the specifications for JIS standards for "long-term signature profiles," we adopted the approach of improving the qualities of CAdES and XAdES rather than providing unique interpretations for ambiguous statements in CAdES and XAdES. In March 2006, ECOM established an unofficial liaison with the European Telecommunications Standards Institute, Technical Committee on Electronic Signatures and Infrastructures (ETSI ESI), and based on CAdES V 1.6.3, worked towards an agreement with the Committee to resolve the backward incompatibility between versions and clarify rules about definitions that are susceptible to more than one interpretation.

Figure 1 shows the overall picture of the organizational framework for developing JIS standards.

(2) Handbook on Electronic Signatures

The handbook is a reference manual for properly implementing processing systems that are required to create and verify data used with signatures written in standard form. It assumes as readers engineers that are working to develop information processing systems.

ECOM has been engaged in research and surveys on long-term signatures since 2000. Although we expect to develop JIS standards for long-term signature profiles by the end of 2007, it

is difficult to implement processing systems based on these standards alone. It is not impossible to implement processing systems by obtaining information from the original specifications used as references in these standards, but it would take considerable effort to read and understand these specifications properly. This handbook provides summaries and explanations of various related standards to help implement systems to accurately process data used with long-term signatures or signatures that are extendable to long-term signatures.

The handbook includes explanations about the following issues:

1) Structures of CMS Signed Data and CAdES (CMS Advanced Electronic Signatures) which provide extended formats for the data. The format defined in RFC3126 and the format defined in ETSI TS 101 733 V1.7.3 (2007-01) are chosen for CAdES.

2) Structures of XML signatures and XAdES which provide extended formats for the signatures. The format defined in ETSI TS 101 903 V1.2.2 (2004-04) and the format defined in ETSI TS 101 903 V1.3.2 (2006-03) are chosen for XAdES.

3) Procedures for creating CAdES and XAdES

4) Procedures for verifying CAdES and XAdES

(3) Survey on Long-Term Preservation of Electronic Documents

Companies, government agencies and local governments are faced with an increasing need to manage documents (for recording, preserving, searching, retrieving and checking data) as various regulations and standards are developed, such as the Information Disclosure Act, the PL Act, the Personal Information Protection Act, ISO 19000, ISO 14000, the Financial Instrument Transaction Act (or "J-SOX Act") enacted in August 2006, and the "Standards for Assessing and Monitoring Internal Control Related to Financial Reports (Public Draft)" presented in November 2006.

To preserve electronic documents and information created by companies, government agencies and local governments and to use these documents both inside and outside these organizations, we need to take account of the following aspects when developing "record management systems":

1) "Requests from the outside" for "record management systems" such as rules, regulations, application standards and organizational policies

2) "Systems for preserving and managing records," including personnel management

3) Technological levels and trends concerning "record management systems" related to the production and preservation of documents

We carried out a survey on these aspects, and based on the survey, we added the following explanations to the ECOM Activity Results Report:

1) We chose internal control and the J-SOX Act as examples of "requests from the outside" and provided explanations about the requirements of the J-SOX Act.

2) We chose ISO 15489 as an example of a "system for preserving and managing records" and provided explanations about the system.

We also provided explanations about the significance of using "long-term signature formats" to record and preserve short-term data and about the "trends concerning media for preserving electronic data" in conclusion.

Future Plans

After conducting the interoperability trial based on the drafts for the JIS standards, a joint plan has been developed by ETSI and ECOM to conduct an interoperability trial between European and Japanese companies.

We are planning to carry out activities to promote and establish the use of "long-term signature formats," including activities for the above joint plan.

<Reference>

Mechanisms and Operations of Electronic Document Systems: Practical Strategies for the E-Document Law, Michihiro Kimura, Yoji Maeda and Kazuya Miyazaki, Chuo keizai-Sha, Inc.

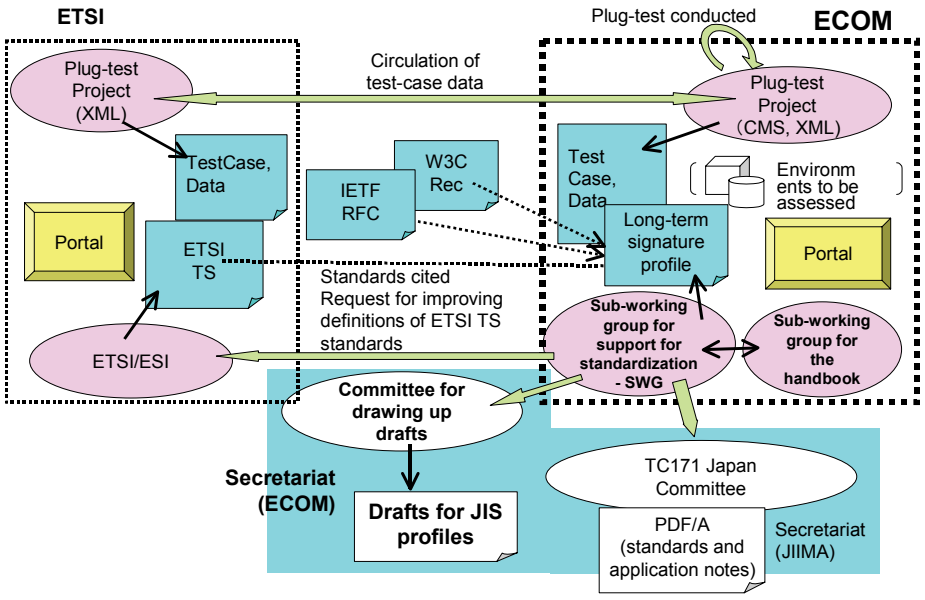


Figure 1. Overall Picture of the Organizational Framework for Developing JIS Standards

Information Security Workshop

Kazuhiro Kawashima,
Research Director, Next Generation Electronic Commerce Promotion Council of Japan

Workshop

Overview of Activities

Following the activities for FY 2005, we organized the "Information Security Workshop" to provide members who are trying to solve problems of information security in their own business operations and activities with opportunities to exchange opinions on their situations freely and examine the "problems faced by contemporary society."

Taking account of the possibility that everybody can be involved in electronic commerce in contemporary society, we held expert lectures and discussions on the following themes in FY 2006: For the first workshop, policies on information security; for the second and third workshops, risks faced by e-commerce users and those who manage infrastructures for e-commerce; and for the fourth and fifth workshops, laws concerning information security in the United States and Japan. Table 1 shows the activities of the workshop group and Figure 1 themes of the lectures and free discussions held at each workshop.

Workshop members also took a leading part in planning and organizing a special seminar to commemorate the "Information Security Day" in cooperation with other related groups.

Table 1. Activities of the Information Security Workshop

Category	Meeting	Date
	Description of activities	
Workshop session	First Meeting	July 7,2006
	Lecture 1: Trends in the Policies on Information Security in Japan	
Workshop session	Second Meeting	September 6, 2006
	Lecture 2-1: Recent Trends Concerning Troubles with Electronic Commerce (BtoC) Lecture 2-2: Sophisticated Phishing Techniques	
Workshop session	Third Meeting	October 20, 2006
	Lecture 3-1: Recent Trends Concerning Risks to Network Security Lecture 3-2: Risks Facing Those Who Are Engaged in the Management and Development of Infrastructures	
Workshop session	Fourth Meeting	November 28, 2006
	Lecture 4: Privacy and Electronic Commerce in the U.S.	
Seminar	19th Meeting	February 6, 2007
	ECOM Seminar: Special Seminar to Commemorate the Information Security Day	
Workshop session	Fifth Meeting	February 20, 2007
	Lecture 5: Laws Concerning Electronic Commerce in Japan: Laws and Information Security Summary of the Activities for the Current Year	

Activity Results

First Workshop (July 7, 2006)

At the first workshop, we invited an expert to present a lecture on policies on information security in Japan, focusing on government projects (the "First Basic Plan on Information Security" and "Secure Japan 2006"), and held free discussions on requirements for information security policies.

Lecture 1: Trends in the Policies on Information Security in Japan

[Summary of the Lecture]

The lecturer lectured on the trends in the policies on information security, discussing changes in the environment surrounding information security (information technology and new levels of risk) and government projects (the "First Basic Plan for Information Security" and "Secure Japan 2006") as well as the following measures proposed by the Ministry of Economy, Trade and Industry: Organizational measures (such as the system for evaluating ISMS conformity, the system for monitoring information security, establishment of information security governance and development of quantitative measures of risks); technological measures (such as evaluation of the safety of IT products, codes and encryption products, developing infrastructures for electronic authentication, and technological development); and legal measures (such as the E-Signature Law and the Law for Prohibiting Unauthorized Access).

[Free Discussions]

In the free discussions, workshop members discussed problems about information security, unified standards for government agencies and evaluation of these standards, and public relations activities to promote information security measures. All members were agreed that (1) there are those who are taking measures for information security as well as those who are not, and measures adopted or not adopted differ from user to user, and that it was necessary to (2) achieve the highest level of information security in the world by (3) setting guidelines and rules to follow and by (4) urging every user to implement measures to provide information security.

Members of the Information Security Workshop also agreed that they should take a leading role in organizing public relations events through ECOM seminars and ECOM News to promote information security for safe and secure e-commerce.

Second Workshop (September 6, 2006)

To explore measures needed to provide information security in contemporary society, the lecturer gave a presentation on various risks faced by users, including trouble with e-commerce and phishing frauds, and free discussions were held to examine risks to information security.

Lecture 2-1: Recent Trends Concerning Troubles with Electronic Commerce (BtoC)

[Summary of the Lecture]

We requested the EC Network, which is working as a nonprofit mutual benefit corporation with limited liability to take over the field trial projects by the Ministry of Economy, Trade and Industry carried out by ECOM until last year, to make a presentation on recent trends concerning consumer trouble in e-commerce (example 1: fraudulent security software, example 2: recent "one-click" frauds, example 3: trouble with undelivered products) and discuss trends concerning trouble in e-commerce and future predictions.

[Free Discussions]

In the free discussions, workshop members exchanged opinions on the following issues: (1) Fraudulent security software that has caused complaints since a couple of years ago and has claimed many victims since April this year; (2) daily changes in forms of online shopping; (3) recent trouble with affiliates; (4) a series of recent business models that allow individuals to obtain incomes through the Internet; and (5) ambiguity between individuals and companies in transactions on the Internet.

Lecture 2-2: Sophisticated Phishing Techniques

[Summary of the Lecture]

A member of AntiPhishing Japan presented a lecture to discuss the following subjects: Information provided by members of AntiPhishing Japan and other individuals (including examples of phishing mail); phishing techniques revealed through the information; information from overseas organizations working to prevent phishing frauds; sophisticated techniques used in recent phishing frauds; recent trends in phishing frauds; phishing mail; number of cyber criminals arrested and examples of cyber crime; and techniques and technologies used in cyber crime and roles of companies and security vendors.

[Free Discussions]

In the free discussions, workshop members exchanged opinions about difficulties involved in measures for preventing phishing, awareness of users about security problems, awareness of developers and system vendors about security problems, and IT literacy among system developers.

The discussions were focused on the following themes: (1) Phishing techniques and techniques for preventing phishing form a vicious circle, and a division of labor (between obtaining information and using information) is developed in recent cyber crime to make it impossible to detect when information is stolen; (2) Many of the websites for phishing are located in overseas countries; and (3) Technological measures alone would be incapable of preventing phishing.

Based on lectures 2-1 and 2-2, workshop members also discussed (4) difficulties in preventing small-scale phishing operations and (5) Japanese users that fall victim to frauds and their awareness about information security. In FY 2006, we also examined activities for sending messages for the "Information Security Day" described in "Secure Japan 2006 (Draft)."

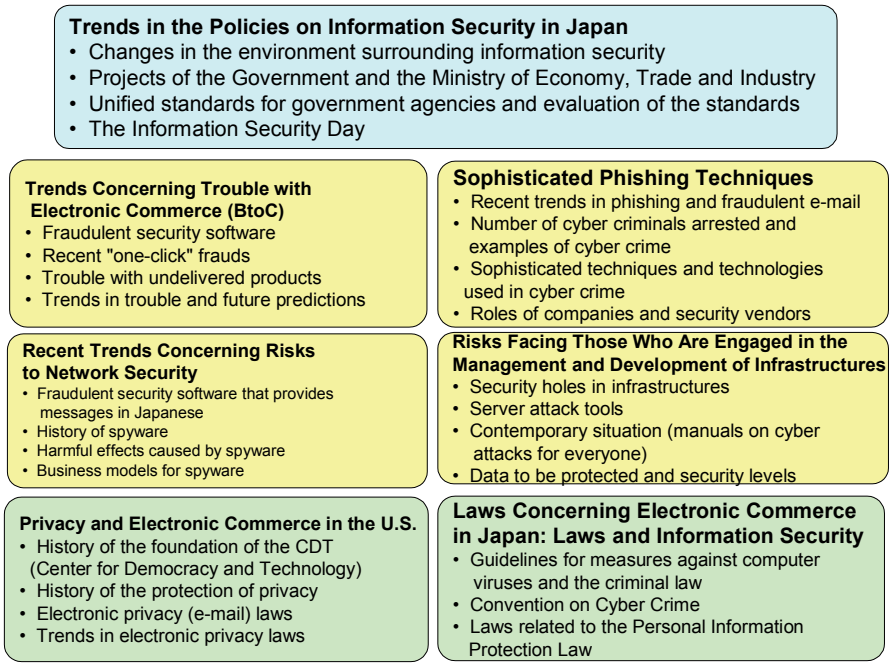


Figure 1. Themes for FY 2006

Third Workshop (October 20, 2006)

Based on the lectures at the second workshop about complaints of consumers and techniques for deceiving consumers, we held lectures and discussions on spyware used in those techniques, and risks facing those who are in charge of managing and developing infrastructures that support e-commerce.

Lecture 3-1: Recent Trends Concerning Risks to Network Security (Including Spyware)

[Summary of the Lecture]

A member of the Japan Network Security Association presented a lecture on the following topics: Recent risks to network security (including spyware) and techniques used in fraudulent security software that provides messages in Japanese; history of spyware; harmful effects of spyware on Japanese society; business models for spyware; technologies for anti-virus measures; and technologies against anti-virus measures.

[Free Discussions]

In the free discussions, workshop members exchanged opinions on the following issues: (1) While environments have been developed to allow everybody to use e-commerce via the Internet, users of e-commerce are facing increased risks (such as spyware). (2) Many of the fraudulent websites are located in overseas countries and available in Japanese. (3) In the United States, spyware has caused serious problems and anti-spyware legislation is being drafted. (4) Small-scale frauds, including fraudulent security software, involve a small amount of damage per case, which makes it very difficult to investigate, prove, and file criminal charges for the frauds. (5) The current situation of e-commerce cannot be considered to be healthy. (6) There is a need to crack down on fraudulent operations to protect public interests.

Lecture 3-2: Risks Facing Those Who Are Engaged in the Management and Development of Infrastructures

[Summary of the Lecture]

We requested a member of the workshop to give a demonstration of safety tools that non-expert users can operate without difficulty and to present a lecture on the following themes: Security holes in infrastructures; server attack tools; current situation of tools (collaboration among developers and the situation of maintenance); and importance levels of data to be protected and security levels. The lecturer pointed out that there are no protective measures that can provide 100% information security and that it was important to choose an appropriate security level for elements of information systems (such as networks, operation systems and hardware) depending on the importance of data to be protected.

[Free Discussions]

In the free discussions, workshop members exchanged opinions on the following issues: (1) There are websites that provide manuals on unauthorized access, written in Japanese for non-expert users, to invite Japanese users to take part in criminal activities. (2) Whether or not managers and developers of infrastructures are aware of the weaknesses of server systems exploited by these manuals makes a big difference. (3) There is a need to be aware of the differences in the importance of data and their locations and to develop and operate infrastructures with the awareness that the infrastructures are always open to attacks.

Fourth Meeting (November 28, 2006)

With the cooperation of the Broadband Association, and bearing in mind the Spyware Act enacted and developed in the United States, we requested the Center for Democracy and Technology (CDT) to present a lecture on privacy problems and e-commerce in the United States, and held joint discussions with AntiPhishing Japan.

Lecture 4: Privacy and Electronic Commerce in the U.S.

[Summary of the Lecture]

A member of the CDT, which was established as a non-government, nonprofit organization in Washington D.C. in 1994, presented a lecture to discuss the history of privacy protection in the United States, fair information practice, the first Privacy Act and recent trends concerning the Privacy Act (financial institutions, medical care and children). The lecturer discussed the following subjects: Companies in the United States are highly active in leading campaigns about laws enacted; progressive laws that encourage companies to make use of IT are adopted and developed to be adapted for circumstances in different fields and areas (states); the same law may be enforced more or less strictly depending on states; and a general privacy law (baseline law) is being examined in recent years.

[Free Discussions]

In the free discussions, workshop members exchanged information on the following issues to examine differences in privacy protection between Japan and the United States: (1) Presence or absence of laws for punishing those who steal information, such as laws against information theft; (2) obligations to make a public announcement in the event of a leak of personal information (the United States: Data Breach Notification Laws, Japan: the Personal Information Protection Law); and (3) policies on privacy protection.

Fifth Workshop (February 20, 2007)

At the fifth workshop, taking account of the discussions about risks facing Japanese society including small-scale frauds and the privacy laws in the United States, we requested a legal expert to present a lecture on laws concerning e-commerce in contemporary Japan and on the protection of personal information in Japan.

Lecture 5: Laws Concerning Electronic Commerce in Japan: Laws and Information Security

[Summary of the Lecture]

The lecturer made a presentation on the following subjects about laws concerning e-commerce, with a particular focus on laws and guidelines concerning information security: Guidelines on prevention against computer viruses (Announcements No. 429, 535 and 952 by the former Ministry of International Trade and Industry); the Penal Law (penalty for business interference such as damaging computers, definition of electronic records, penalty for unauthorized retrieval and use of electronic records, frauds using computers, penalty for damaging public documents and other records and penalty for damaging private documents and other records); the Convention on Cyber Crime; a draft of partial amendments to the Penal Law aimed at developing preventive measures against international, organized crime using sophisticated information technologies (a draft of amendments to the penalty for creating electronic records for unauthorized orders); and guidelines related to the Personal Information Protection Law.

[Free Discussions]

In the free discussions, workshop members discussed differences between definitions in guidelines developed in laws or by government agencies and what occurs in actual business operations, i.e., differences between abstract risks and concrete risks.

The discussions were focused on the following issues about oversensitive reactions concerning the protection of personal information: (1) Personal information remains personal no matter how it is encrypted, and we are obligated to report any loss of personal information under all circumstances. (2) The only thing we need to consider with regard to a specific level of risk (time required for decrypting codes) is what to recommend as an encryption method (recommended code). (3) No matter what electronic encryption technologies are used, we are always required to fulfill legal obligations to report leaks of personal information and protect it. (4) Security levels differ between industries and depending on the importance levels of information. (5) What measures should be adopted to prevent overactive reactions from leading to abandonment of security measures.

Future Plans

We will summarize what was revealed by the discussions between experts and workshop members about risks involved in a society in which anybody has the chance of using electronic commerce, causes of those risks and problems to be resolved.

Based on our knowledge about these issues, we are planning to formulate plans for the next year for information security projects in ECOM.

[Risks to Information Security in Electronic Commerce]

1) Recent phishing techniques and spyware messages provided in Japanese lead us to believe that development tools and operation manuals for cyber attacks are made available in order to draw Japanese users into criminal activities as victims and accomplices.

2) Network crime is no longer committed by computer geeks simply for the sake of pleasure, but for organizational profits, and complex negative business models have been created by "affiliaters" and other role players. Furthermore, we are surrounded in our daily lives by criminal operations such as small-scale frauds that are difficult to detect, and many people fall victim to these criminal operations.

3) Technologies for and against phishing and spyware form a vicious cycle, making it impossible to prevent all risks once and for all.

[Measures for Preventing Risks to Information Security]

1) The National Information Security Center and the Ministry of Economy, Trade and Industry are stepping up their efforts to develop organizational and technological strategies for providing information security and improving the level of information security measures taken by the government, companies and individuals for basic infrastructures.

2) In the United States, progressive laws like the Spyware Act have been adopted and developed to be adapted for the circumstances in different fields and areas (states), and companies take an active part in launching campaigns for using IT. In these respects, there are differences between the United States and Japan.

3) In Japan, there is no heightened awareness about raising the level of information security measures, which is one of the factors that prevent a clear consensus from being reached between engineers, company executives, the government and lawyers and improvements from being made in information security measures.

IT Utilization WG

Yoshifumi Yamada, Yasuji Mori, Research Directors,
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

(1) Introduction – Background and Purpose

Over the past several years, the IT Utilization WG (hereinafter referred to as "WG") has aimed to provide opportunities for WG participants to examine advanced cases of B2B EC and B2C EC in order for them to better understand a wide range of utilization cases and make use of what they learned in their businesses. In FY 2006, the WG planned to make an evaluation model through organizing metrics which the effects of B2B EC utilization will be evaluated.

According to the market size comparison between Japan and the U.S. in the " 2005 e-Commerce Market Survey" issued by the METI, the Japanese and U.S. B2B EC markets as broadly defined were 224 trillion yen and 189 trillion yen, respectively, and the ratios of e-commerce to ordinary transactions as broadly defined in Japan and in the U.S. were 20.6% and 11.9%, respectively. Thus, the Japanese EC market has greatly grown in size, but few Japanese companies have measured or managed the effects of EC utilization based on objective metrics as part of their business management.

In these circumstances, the IT Utilization WG built an evaluation model designed specifically to evaluate the effects of EC utilization with the support of a research company (Accenture).

(2) Research System – WG Management and Research Method

1) Management

Since building an evaluation model requires a wide knowledge of EC, experts as well as ECOM members were invited to participate in the WG. The research company was asked to keep the WG informed of the progress of their research and to reflect the opinions or comments of the WG in the research results. A total of seven WG meetings were held (Table 1).

2) Research Method

The evaluation model was built through categorizing EC, summarizing the EC aims and organizing metrics by which the effects of EC utilization are evaluated. For this purpose, WG

a) surveyed investment evaluation methods

b) asked some WG members to introduce case examples of their companies or industry groups organization they are related to

c) conducted a brief survey of cases of EC utilization in Japan and in the U.S. based on public information (Japanese companies: 58 cases, U.S. companies: 20 cases)

d) conducted a detailed survey of 14 advanced cases of EC utilization in Japan and in the U.S.

Activity Results

(1) The Current States of EC in Japan and in the U.S.

In this survey research, where a brief survey of case examples of EC and a detailed survey of advanced cases of EC in Japan and in the U.S. were conducted, a statistically significant number of cases could not be analyzed, but the following three findings were obtained indicating the overall trends:

1) No big difference in e-procurement between Japan and the U.S.

The U.S. does not have a big advantage over Japan, but rather some structurally-advanced cases were found in joint procurement in the Japanese synthetic fiber industry.

2) While many Japanese companies make tactical use of e-selling to improve the efficiency of existing businesses, many U.S. companies make strategic use of e-selling to achieve structural reform of their businesses.

The brief survey of case examples of EC in Japan indicates that many companies have "used EC upon request of their business partners." The detailed survey of advanced cases of EC in Japan shows that many companies have "used EC for low-value-added work in existing business and human

Table 1. History of the Activities of the "IT Utilization WG"

Category	Meeting	Date
	Description of activities	
WG	First	July 24, 2006
	Scheduled activities in this fiscal year. Lecture: "IT Investment Evaluation Methods"	
Seminar	12th	September 1, 2006
	ECOM Seminar: Trends of E-commerce in Japan	
WG	Second	September 11, 2006
	Introduction of two case examples. Preparation for selecting an outside research company	
WG	Third	October 3, 2006
	Introduction of two case examples. Selection of an outside research company	
WG	4th	November 13, 2006
	Introduction of a case example. Report and review of the "Brief Survey on Case Examples of EC in Japan and in the U.S."	
WG	5th	December 11, 2006
	Report and review of an "Interview Survey on Case Examples of EC"	
WG	6th	January 15, 2007
	Report and review of an "Interview Survey on Case Examples of EC" and review of an "Evaluation Model"	
WG	7th	February 19, 2007
	Report and review of an "Interview Survey on Case Examples of EC," review of an "Evaluation Model," and "Final Report"	

resources were shifted to higher-value-added work."

Many of these companies expect that EC will contribute to improve work efficiency and allow them to allocate human resources for further growth. They make positive use of EC to create value, but in many cases, existing business models or business structures have still remained, in other words, their way of introducing EC is an extension of existing strategies and limited to tactical use.

On the other hand, many U.S. companies have made strategic use of EC to change business structures or business models.

For example, company X, studied in the detailed survey of advanced cases of EC in the U.S., changed their clothing tag business, where it is commoditized and difficult to differentiate products, into a highly-profitable business by adding service value to product value.

The use of EC by company Y is based on a clear marketing strategy. They have set out various value propositions separately for four different segments based on the customer requirement. They apply EC for pursuing the low price only to a segment expecting low-price. Thus, their basic management strategy and EC is firmly coupled.

It seems that EC is used in a more positive and strategic manner in the U.S. than in Japan. The tactical use of EC may work if existing businesses have a business structure that produces adequate profits. However, in commoditized businesses that can no longer produce adequate profits, Japanese companies should learn from U.S. companies and use EC in a bold and strategic manner without being constrained by existing business models.

3) Multilateral management of EC is performed in some Japanese and many U.S. companies. Most Japanese companies have not performed multilaterally managed EC.

While many U.S. companies perform multilateral evaluation of EC, only some Japanese companies perform multilateral evaluation of EC. This may be because of the depth of involvement of the management or the clearness of strategies behind EC.

(2) Concept and Usage of an Evaluation Model

An evaluation model is consisting of "Categorization of EC" and "Evaluation of EC."

1) Categorization of EC

a) Necessity of categorization

Because the scope of the term "EC" is very wide, evaluation items of EC depend on the purpose of the EC in question. For this reason, before evaluating EC, WG categorized EC and made clear the purpose and constraints of EC.

b) Overall picture of categorization

EC is categorized by sorting out the purposes from the following three perspectives: in what domain ("EC domains"), for what aim ("EC aims"), and for what reason ("economics").

- "EC domains"

  Domains classified by the two axes, "EC type (procurement or selling)" and "reform domain," are defined as "EC domains." The expected effects of each EC domain are sorted out as "EC aims." EC aims that require a detailed explanation are described in "economics." Categorizing EC into "EC domains," "EC aims," and "economics" clarifies the purposes of EC and allows evaluation of EC depending on the purpose in "Evaluation of EC" described later.

- Categorization of "EC domains"

  Figure 1 illustrates EC domains.

- Purposes of six "EC domains"

  There exist common purposes in each domain, as shown in Figure 2.

- "EC aims"

  The EC aims in each EC domain and their constraints are described. Constraints here mean requirements to meet in order for EC aims to create expected effects.

  If constraints cannot be cleared by some fault of their own reason, competition, relationships with business partners, the structure of the industry, or other reasons, it is difficult to expect EC to create the expected effects

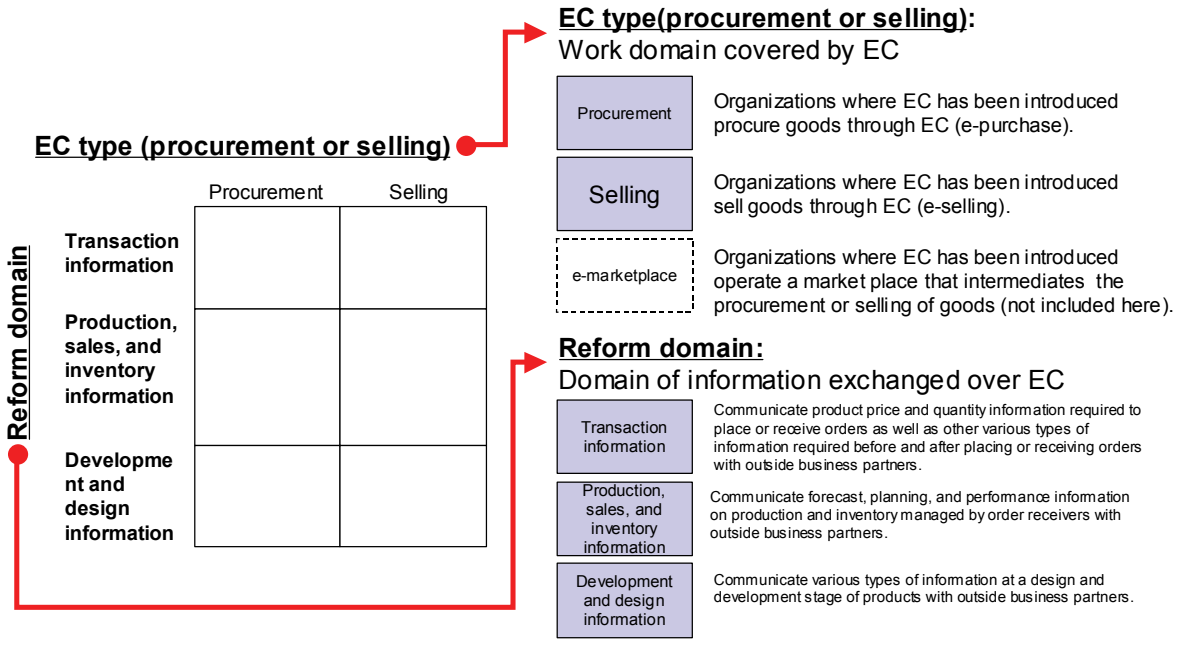


Figure 1. Categorization of EC Domains

over a long period of time.

Concerning the EC aims followed by the star sign (★) in Figure 3, the mechanism and the conditions by which effects are created are explained in "Economics."

Figure 4 illustrates an example of "reduction of parts inventory" (EC type (procurement or selling): procurement, reform domain: production, sales, and inventory information).

- "Economics"

  Among EC aims, if necessary, a detailed explanation of the mechanism and conditions by which effects are created are described in "Economics."

  Requirements for creating effects are conditions to meet to create the expected effects of "EC aims."

2) "Evaluation of EC"

"Evaluation of EC" consists of the following four phases: "diagnosis," "prescription," "formulation of measures," and "action management" (Figure 4). Various tools are available in these phases.

a) Phase I "I Diagnosis"

In this phase, situations related to EC in their own organization are analyzed, with an aim to detect the improvements (items that are inferior to figures in the previous year, target values, average values in the industry, or other comparative figures worse than constant standard). As components of diagnosis, two kinds of indicators are employed. One is financial indicators, which are closely related to EC, such as returns on investment, operating profit ratios, and cost to sales ratios, and the other key indicators in each domain on standard strategic maps that summarize the relationship among strategic objectives to create effects, such as ratios of EC to ordinary transactions, stockout rates, and customer retention rates. EC will be evaluated on a whole company-unit basis or business organization unit basis.

b) Phase II "II Prescription"

In this phase, improvements found in the diagnosis phase are associated with the direction of countermeasures against them. The direction of countermeasures against the improvements is clarified. Specifically, possible EC aims that are effective for improvements are extracted.

c) Phase III "III Formulation of measures"

This phase is subdivided into two steps: "III-1 Selection of EC aims" and "III-2 Formulation of measures to realize EC aims."

- In "III-1 Selection of EC aims," the first step, possible EC aims extracted in the prescription phase are examined to narrow down to those expected to create effects, in view of the business characteristics, business environments, and external environments of EC.
- In "III-2 Formulation of measures to realize EC aims," the latter step, a strategic map for EC aims narrowed down to in the previous step is built. With reference to existing standard strategic maps created separately for individual EC aims, plans for creating effects from EC in that company are constructed as their strategic map.

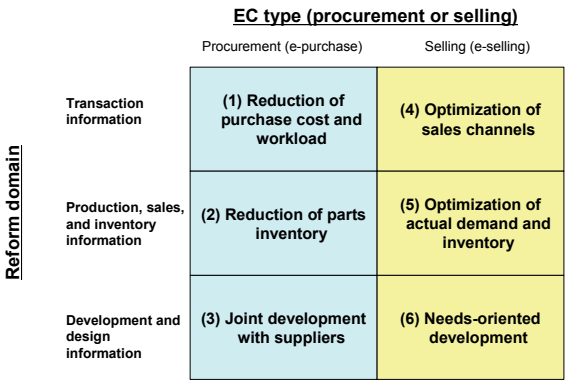


Figure 2. 6 EC Domains and Aims

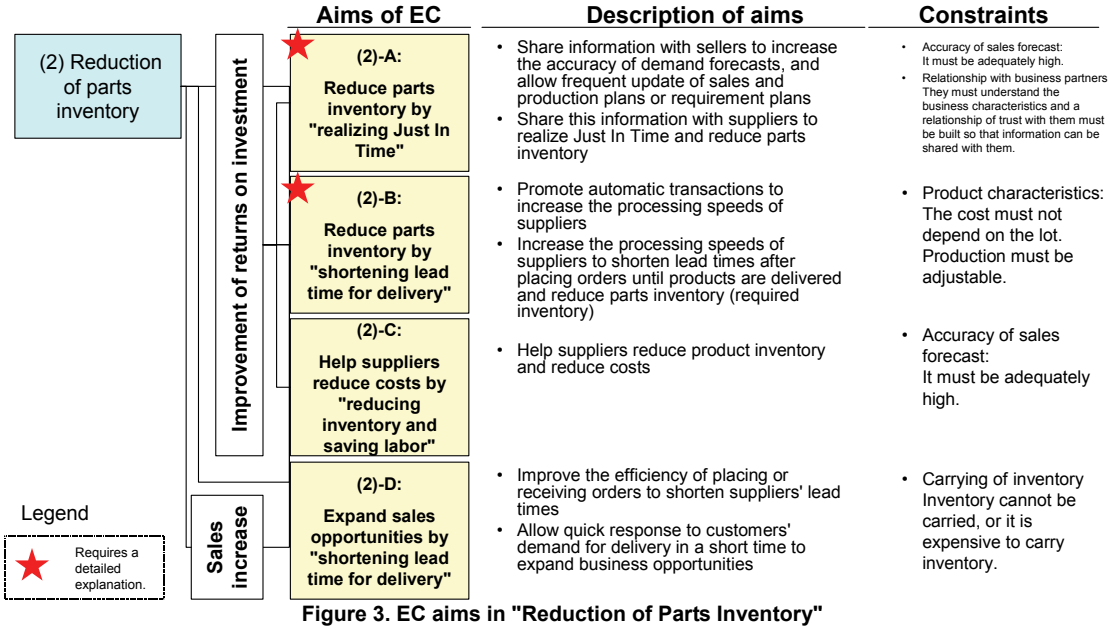


Figure 3. EC aims in "Reduction of Parts Inventory"

d) Phase IV "IV Action management"

In this phase, the progress of action plans shown in a strategic map are making steady progress or not is managed.

Set KPIs according to strategic purposes in the strategic map, and manage them continuously. By doing this, one can find out whether the expected effects have been created or not. If such effects have not been created, the causes can be identified. The causes are divided into the following two: the plan is completely wrong or the plan is correct but a certain strategic purpose has not been achieved. In the first case, you should go back to the previous phase, reformulate measures, and draw up another strategic map. In the latter case, you should review action for improvement.

By returning to the diagnosis phase after a certain period of time (after a year, for example), continual improvements can be made to EC, and EC can be evaluated for creating effects.

Summary

(1) Proposals Based on the Results of This Survey Research

1) Industry-by-industry benchmarks

Since the expected effects of introducing EC utilization depend on the business structure or business characteristics, it is difficult to compare the effects of EC utilization among different industries. On the other hand, whether the EC utilization in an organization was successful or not cannot be determined just by measuring the effects by their own criteria. It is relatively easy to compare the effects of EC utilization among organizations in the same industry since they have similar business structures. Thus, standard, industry-by-industry benchmarks should be effective.

In these circumstances, industry groups should establish benchmarks by which the effects of EC can be evaluated, in order to promote the use of EC in the whole industry. In view of competition among organizations, they should be required to report certain indicators to a neutral body, rather than to disclose specific figures to each other, for receiving only average figures. This will allow them to evaluate their own efforts correctly for sound development of EC.

2) Strengthening of linkage between strategies and EC

One issue in utilizing EC in Japan is clarifying the purposes of utilization of EC or "why should EC be performed?" rather than "how should EC be performed?" This is an issue separated from IT. The EC aims should be clarified at a managerial level.

For example, it is important to review the existing business structure or your business strategies for clarifying EC aims with use of "EC aims" in the evaluation model built in this survey research and share them with those in charge of EC.

(2) Future Plans

This time an evaluation model was build for the first time based mainly on advanced cases of EC in the manufacturing industry. In the future, organizations that have employed EC will be asked to use this model so that their comments can be reflected for further improvements. The Next Generation Electronic Commerce Promotion Council of Japan will hold seminars to actively promote the use of EC with a view to possible tie-ups with third-party organizations, as well as interview or send questionnaires to organizations that have employed EC for improving this model.

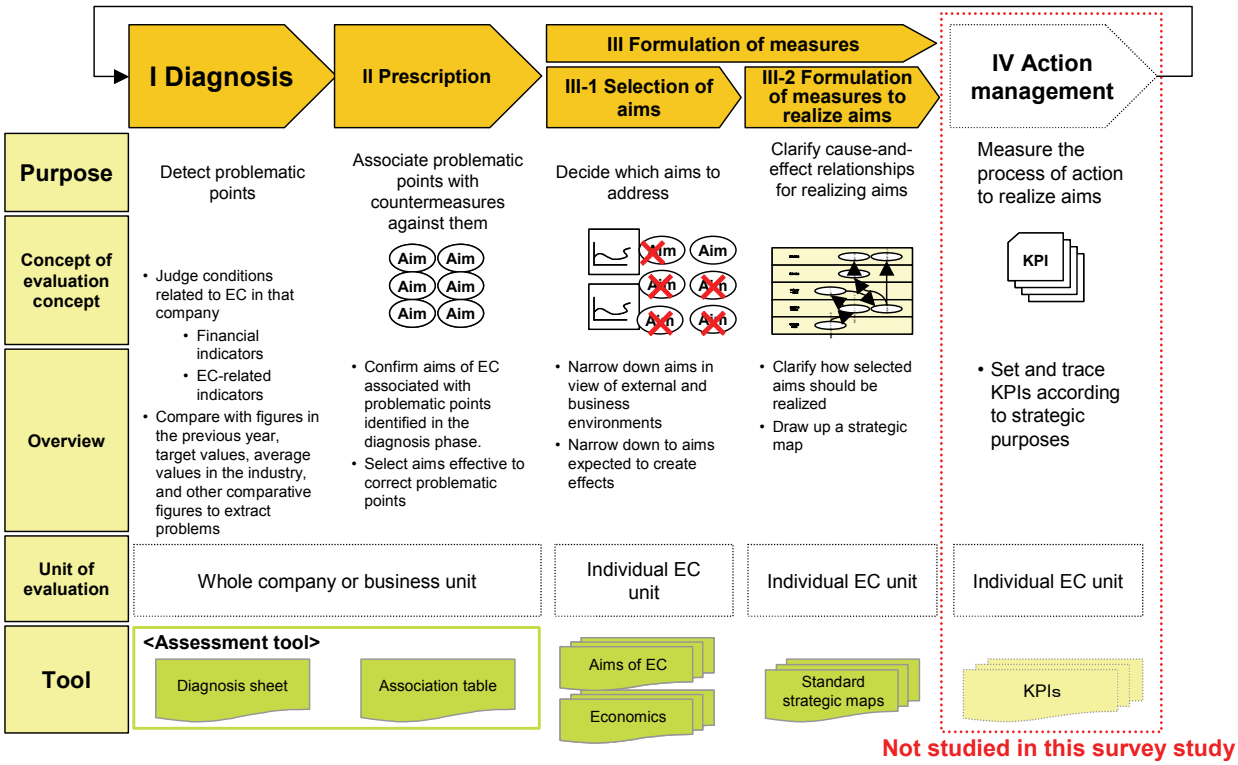


Figure 4. Overall Picture of an EC Evaluation Model

e-Government & Business Collaboration WG

Michihisa Uchida, Research Director
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

In the "New IT Reform Strategy," a goal of increasing the utilization ratio of electronic applications to 50% by 2010 is set. It is beyond discussion that to achieve this goal, mechanisms that satisfy applicants' needs must be rebuilt. For the past 5 years, this WG has been making efforts to grasp the needs of applicants with a constant focus on users. At the same time, focusing on the needs of companies, who are power users of electronic applications, the WG has worked and made proposals on building mechanisms that help improve the efficiency of work related to administrative procedures.

In FY 2005, the WG focused on the following two issues and made proposals for identifying and resolving problems:

1) Improve the efficiency of retirement procedures for baby boomers who retire at the same time in 2007
2) Promote the utilization of the electronic tax filing and payment system (e-Tax)

As a result of a questionnaire survey of 1,000 companies and 400 baby boomers, many bottlenecks were found throughout personnel procedures, such as payroll reporting and year-end adjustment.

Administrative procedures related to personnel and labor affairs in a company include procedures related to social insurance, labor insurance, and tax. These procedures are extensive in range and huge in number, requiring preparation of various documents to submit or attach. In some cases, you may have to visit two or more administrative offices, such as one responsible for your office and another responsible for the area to which an employee was transferred, and these offices may require you to use different application forms. The reason why the utilization of electronic applications has not been widely spread despite a great burden born by companies in non-electronic applications is probably because processes for procedures in companies are not consistent with processes for electronic application procedures in administrative offices. Many companies have databases of all employees, but electronic applications require them to transcribe or enter data onto forms specified for administrative procedures. They are not provided with a mechanism by which procedures can be processed at a time for a certain event, such as "entrance," "retirement," or "childbirth." For this reason, electronic applications currently available do not help companies improve the efficiency of work. To overcome this situation, the inconsistency between processes for procedures in companies and administrative offices must be eliminated, and these processes must be optimized to allow seamless linkages between the both systems.

In FY 2006, the WG analyzed the current states of electronic applications on an event-by-event basis, identified problems, and proposed optimization plans. The WG's activities in FY 2006 are listed in Table 1.

Table 1. History of Activities of the "e-Government & Business Collaboration WG"

Meeting	Date
Description of activities	
First	July 13, 2006
Report of activities in the previous year and presentation of planned activities in this fiscal year	
Second	August 31, 2006
Review of activities	
Third	September 26, 2006
Analysis of the current state of improvement in efficiency of personnel procedures	
4th	October 24, 2006
Discussion of planned improvements of personnel affairs	
5th	January 23, 2007
Summarization of issues in the current personnel procedures	
6th	February 22, 2007
Drafting of optimization plans for improving convenience in personnel procedures	

Activity Results

(1) Problems Found in Procedure Flow

Problem 1:

Services are not harmonized with work flow in companies.

While companies (employers) and employees perform necessary procedures depending on the event, such as "entrance" and "retirement," application procedures in administrative offices are made online on an office-by-office or application-by-application basis. Thus, event-by-event explanations are required.

Table 2. Attached Documents

Return of original copies following disqualification or other events	Pension booklet, health insurance card, etc.
Documents prepared by third-party organizations	Certificate of school attendance, working student card, maternal and child health handbook, doctor certificate, midwife certificate, certificate of other health workers, death certificate, etc.
Documents prepared by companies based on data	Wage ledger, attendance register, workers register, notification of wage revision, salary report, average wage statement, minutes of director meetings, etc.
Documents obtained from competent administrative offices	Certificate of residence, copy of a family register, copy of removal from a family register, unemployment insurance policy, taxation certificate, etc.

Problem 2:
Multiple signatures are required.

Many procedures proposed by employees require their signatures as well as the signature of the company (business owner). In some cases, the signatures of even public consultants on social and labor insurance and other intermediary agents may be required, adding to their troubles.

Problem 3:
A lot of documents must be attached.

Many electronic applications require attached documents to be submitted. Attached documents can be categorized into four types as shown in Table 2.

Problem 4:
Procedures for receiving notifications from administrative offices are cumbersome.

The examination results of applications made online can be received online. A notification can be received by entering an arrival number given when the application is made, an ID given to check the status of processing, and another ID and a password given when the examination is finished.

Since these numbers are given every time an application is made, notifications cannot be obtained unless they are managed one by one. A list of these numbers, IDs, and passwords or other similar documents must be prepared.

(2) Problems Pointed out by Software Vendors

Problem 5:
Application forms must be output differently depending on the type.

Application forms must be output differently depending on the type as follows:

- Output to a form specified by an administrative government agency and submit the form
- Transcribe onto a commercially available form or onto a package's own form and submit the form
- Output to an all-purpose form, transcribe onto a form specified by an administrative government agency, and submit it.

Problem 6:
The necessity of online applications is not felt strongly.

Many packages employ a method of attaching magnetic media or floppy disks for batch applications, which can be made highly efficient.

This is because the Health, Labour and Welfare Ministry has made public procedure formats for FD applications, and necessary documents can be stored in a FD and sent by mail for a batch procedure. As a result, there are few benefits to making application online.

Problem 7:
Implementation-level specifications for online applications are not made public.

Entry formats for attaching magnetic media or a FD are made public, and software vendors can build packages that provide seamless processing for applications. However, implementation-level specifications for online applications where applicants are required to fill in a specified form are not made public.

(3) Problems Raised in Hearings with Economic Organizations

Problem 8:
Introduction of a mechanism by which signatures and seals of approval can be put depending on the authority of management

Currently, signatures and seals of approval are put by individuals. When a company puts a seal of approval to an official document, it must be signed by a representative of the company. Generally, whether a company should sign a document or not is decided by persons in charge, who follow an appropriate procedure. In that case, signatures are often put by regular employees on behalf of those authorized to put a signature as a representative of their companies.

(4) Issues to Address to Cope with the Problems

Table 3 lists issues to address to cope with the identified problems.

Table 3. Problems and Issues to Address

Problem		Issues to address
Problem 1	Services are not harmonized with work flow in companies.	• Provide procedure guidance separately for various company events • Build seamless linkages with companies' information systems
Problem 2	Multiple signatures are required.	• Eliminate the need for electronic signatures in applications involving qualified persons • Require application documents submitted by an employee through his/her company to be signed only by a representative of the company for approval.
Problem 3	A lot of documents must be attached.	• Build a database of evidenced documents held by companies to allow sharing of information with administrative offices. • Allow companies not to submit documents for procedures performed by employees through their companies on the condition that the companies are responsible for examination. • Share information between administrative offices to eliminate the need for applicants to submit the same documents redundantly subject to their agreement
Problem 4	Procedures for receiving notifications from administration are complicated.	• Introduce a mechanism by which applicants can easily manage various login codes by creating application login files or other files that can be referred to
Problem 5	Application forms must be output differently depending on the type.	• Standardize formats so that applicants no longer need to use different forms depending on the application type • Require the central and local governments to seek unity of handling of forms for online applications by law.
Problem 6	The necessity of online applications is not felt strongly.	• Grasp and confirm the needs of applicants • Realize seamless linkages between company systems and application systems • Build a mechanism by which applications can be completed online
Problem 7	Implementation-level specifications for online applications are not made public.	• Make public implementation-level specifications for online applications • Provide environments where connection tests can be performed • Provide maintenance information on a timely fashion
Problem 8	Introduction of a mechanism by which signatures and seals of approval can be put depending on the authority of management	• Review the e-signature law in light of the actual conditions of organizations

(5) Optimization Plans

As optimization plans to improve the convenience of electronic applications, ideal models for drastically improving the convenience of "retirement procedures and procedures for rehiring staff of retirement age" and "tax-related procedures" were examined, and two optimization levels were set. One is the optimization of systems (level 1) and another is the optimization of procedures or administrative systems (level 2).

- Level 1: Ask private companies to adapt their systems to the online application mechanisms provided by the government
- Level 2: Partially modify the online application mechanisms provided by the government within the scope of the system

Future Plans

Based on the following levels proposed for the optimization plans to improve the convenience of personnel procedures in companies, the WG plans to decide to what extent personnel procedures in companies can be linked to administrative agencies, and propose cost reduction models:

- Level 1: Ask private companies to adapt their systems to the online application mechanisms provided by the government
- Level 2: Partially modify the online application mechanisms provided by the government within the scope of the system
- Level 3: Make administrative procedures sharable

Information Sharing Technology WG

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Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

The New IT Innovation Strategy issued by the IT Strategic Headquarters sets up a target of "building and using internationally-accepted, general-purpose common infrastructures in e-commerce" to establish IT management for strengthening the competitiveness of companies.

This WG has been engaged in the following activities with an aim to develop an international and cross-industry information model, based on information sharing technologies that help to build internationally-accepted, general-purpose common infrastructures in e-commerce:

(1) To build an international, cross-industry, common information model, the WG was involved in the development of a common information model (core components and business information entities) in the UN/CEFACT to promote the early development of the international standard common information model. To promote use in domestic industries, the WG also defined this model in Japanese and made it public as a library. As for CII messages widely used in domestic industries, the WG worked on methods for ensuring their interoperability in the international standard common information model and its mapping into XML.

(2) To research information sharing technologies that help to build common infrastructures, the WG researched latest international technical standards (technologies for applying an information model to a certain business domain (context) and technologies for assembling EDI messages from an information model (message assembly)) related to the common EC infrastructure framework promoted by the Practical B2B-EC Framework Study WG and its components and was involved in the development of

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

Meeting	Date
Description of activities	
First	August 3, 2006
Discussion of scheduled activities. Explanation of international standardization trends of e-commerce	
Second	September 29, 2006
Discussion of common e-commerce infrastructures. Analysis of standardization trends in the UN/CEFACT (core components library, related types, definition of parties involved, context)	
Third	October 23, 2006
Continued analysis of standardization trends in the UN/CEFACT (core components library, message assembly, context)	
4th	December 4, 2006
Comparative discussion of ISO standards, UN/CEFACT core components technical specifications, and context methods	
5th	January 19, 2007
Proposal of a harmonization procedure in the UN/CEFACT Discussion of the harmonization of EDI standards in Japan with international standards	
6th	February 3, 2007
Localization of the core components library into Japanese. Discussion of the report structure and overview.	

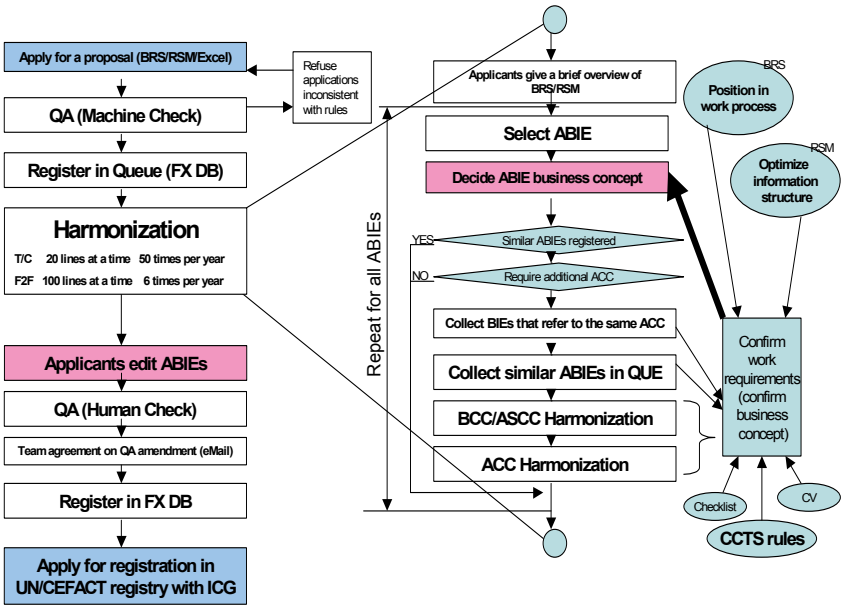

Figure 1. Information Entities Harmonization Process

necessary technical standards, as well as considered their introduction in common EC infrastructures in domestic industries.

Activity Results

The UN/CEFACT, which is making efforts to set standard information entities used in EDI, harmonized 1,672 information entities based on information entities proposed by industries around the world in the previous year ("Harmonize" here means to normalize information entities according to relevant technical standards and to integrate similar ones). At present, more than 3,000 information entities have been proposed to the UN/CEFACT by various industries ranging from transportation, insurance, and animal and plant quarantine to finance. At the same time, the auto industry and trade-related industries are planning to propose the standardization of information entities. If the conventional procedure is followed to harmonize information entities, the backlog will increase at a speed higher than the speed at which information entities are harmonized, and the situation may get out of control.

In these circumstances, the WG proposed to focus on core components rather than on conventional business information entities in harmonizing information entities, as shown in Figure 1, and gained acceptance among member countries.

In 2007, information entities were harmonized according to the proposed procedure, and the UN/CEFACT decided to issue a dictionary of 785 core components and 1,096 business information entities (CCL06B) by March 2007. Table 2 lists standardized information entities (aggregate core components).

As for technologies for applying an information model to a certain business domain (context), technical requirement specifications have just been developed. This WG discussed context application methods with experts from the ISO JTC1 SC32/WG2 (metadata), and submitted the WG's opinions to a working group of the UN/CEFACT working on the methods.

As for technologies for assembling EDI messages from an information model (message assembly), this WG submitted its opinions against a proposal of a working group of the UN/CEFACT working on the technical specifications to promote standardization without separating semantic information from IT implementation.

Future Plans

The UN/CEFACT has been making steady efforts to standardize international and cross-industry information entities. In the future, Japanese industries are required to promote cross-industry EDI in harmony with the standard. Thus, the WG must show the usage of information entities standardized by the UNI/CEFACT, map them on current EDI in Japan, and decide other methods for promoting the use of EDI in domestic industries.

To this end, the WG will support the early standardization of "technologies for applying an information model to a certain business domain (context)" and "technologies for assembling EDI messages from an information model (message assembly)" and develop a standard EDI message development guide including these technologies.

Table 2. Second Edition of UN/CEFACT Information Entity Library

Dictionary Entry Name （辞書引き名）	Japanese Name （日本語名）	Dictionary Entry Name （辞書引き名）	Japanese Name （日本語名）
Accounting Account. Details	会計勘定	Address. Details	住所（所番地）
Adjustment. Details	調整	Assignment. Details	割当
Bill Of Quantities. Details	数量明細書	Business Profile. Details	事業概要
Business Type. Details	業務種別	Calculation. Details	計算
Calendar. Details	暦	Communication. Details	通信
Completed Work. Details	完了作業	Complex Description. Details	複合説明
Construction Type. Details	工事種別	Contact. Details	連絡先
Contract Award Notice. Details	契約締結通知	Contract Change. Details	契約変更
Contract. Details	契約	Cost. Details	費用
Country Sub-Division. Details	国内行政区画	Country. Details	国
Currency Exchange. Details	為替交換	Data Node. Details	データノード
Deliverables. Details	成果物	Delivery Terms. Details	引渡条件
Dimension. Details	外形寸法	Document. Details	文書
Event. Details	事象	Examination Result. Details	検査結果
Facility. Details	設備	Factory. Details	工場
Feature. Details	機能	Financial Account. Details	金融口座
Financial Card. Details	金融カード	Financial Institution. Details	金融機関
Geographical Coordinate. Details	地理座標	Guarantee. Details	保証
Instructions. Details	指図	Location. Details	位置
Metrics. Details	尺度	Note. Details	注釈
Organization. Details	組織	Party. Details	当事者
Payment Means. Details	支払手段	Payment Terms. Details	支払条件
Payment. Details	支払	Penalty Charge. Details	違約金
Period. Details	期間	Person. Details	個人
Picture. Details	画像	Preference. Details	選択
Price. Details	価格	Process. Details	プロセス
Product Identification. Details	製品識別	Product Unit Identification. Details	製品単位識別
Programme. Details	プログラム	Project. Details	プロジェクト
Qualification. Details	資格	Quantity Analysis. Details	数量分析
Query. Details	照会	Registration. Details	登録
Requirement. Details	要件	Resource Assignment. Details	リソース割当
Resource. Details	リソース	Response. Details	応答
Route. Details	経路	Service Charge. Details	サービス料金
Service Option. Details	サービスオプション	Service. Details	サービス
Software. Details	ソフトウェア	Source. Details	水源
Staff. Details	要員	Status. Details	状態
Tax. Details	税	Technical Capability. Details	技術力
Temperature. Details	温度	Tender Result. Details	入札結果
Tenderer Result. Details	入札者結果	Tendering Process. Details	入札プロセス
Test Condition. Details	試験条件	Transport Means. Details	移動手段
Usage Condition. Details	使用条件	Work Capability. Details	作業能力
Work Item. Details	作業項目	Work Shift. Details	交代勤務

Next Generation EDI (ebXML) WG

Masato Tamori, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

(1) Background

The ebXML (electronic business XML) standards, international standards of next-generation EC/EDI started by the United Nations Center for Trade Facilitation and Electronic Business (UN/CEFACT) and the Organization for the Advancement of Structured Information Standards (OASIS), are expected to improve inter-business work processes, provide highly reliable functions, and offer many other benefits, but the penetration of the standards has been delayed partly because of a delay in the development of major standards. However, major ebXML standards were established by the end of FY 2004, and it seems that they are now ready to be implemented. Actually, ebXML has been employed steadily in the U.S., Europe, and Asian regions.

On the other hand, the introduction of ebXML in Japanese industries has not been promoted as expected. If no actions are taken, Japanese industries will lag behind other countries in building common inter-business information sharing infrastructures based on the international standards, which will make it difficult for Japanese companies to gain a leadership in the global business arena.

(2) Objectives

As mentioned above, it is important to disseminate ebXML, which has been developed as the international standards of next-generation EC/EDI, in Japanese industries as well as to reflect the needs of Japanese industries in the international standards.

Table 2. History of Activities of the "Next Generation EDI (ebXML) WG"

Meeting	Date
Description of activities	
First	July 26, 2006
Agreement on scheduled WG activities	
Second	September 20, 2006
Implementation comparison of PC client solutions Evaluation of the progress of standardization of ebMS V3	
Third	October 18, 2006
Implementation comparison of PC client solutions / digital documents Evaluation of a draft of WSRM, proposal of public reviews	
4th	January 9, 2007
Implementation comparison of digital documents Evaluation of draft WSRM/ebMS V3 interoperability verification test specifications	
5th	February 9, 2007
Evaluation of reports: client solution introduction guide/draft instruction manual for ebMS V3-based PC client solutions	

In FY 2005, with an aim to disseminate EDI in Japanese small and medium-sized companies where its introduction has been delayed, the WG worked on the development of environments where ebXML-based EDI can be easily introduced with use of PC clients in small and medium-size companies where it is difficult to operate B2B servers continuously. As a result, the WG developed specifications to require the addition of client server (PC client) compatible messaging service functions to the ebXML Message Service (ebXML communication procedure specifications), and proposed the specifications to the OASIS.

In FY 2006, the WG continued to assist the OASIS in standardizing the requirement specifications, as well as carried out further research on EC/EDI solutions that can be applied to small and medium-sized companies and conducted technical research on various ebXML-based PC client solutions.

Activity Results

As mentioned above, the WG has worked on the following items under the themes of "participation in international standardization activities" and "research on EC/EDI client solutions:"

(1) Participation in International Standardization Activities

1) Proposal to the ebXML Message Service 3.0 specifications

The client server (PC client) compatible messaging service function specifications proposed to the OASIS in FY 2005 were adopted by the OASIS. The specifications, incorporated into the ebXML Message Service 3.0 (ebMS V3) specifications worked on by the organization, are under standardization.

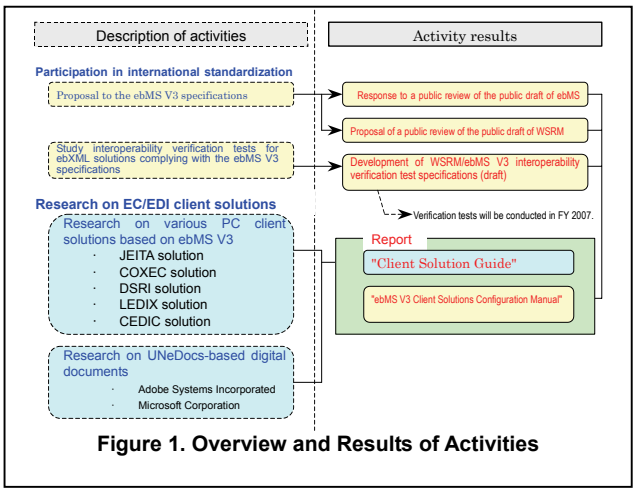

Figure 1. Overview and Results of Activities

This WG participated in the standardization activities.

Specifically, the WG participated in the following activities:

- Response to a public review proposed for the public draft of ebMS V3
- Proposal of a public review of the public draft of the WS-ReliableMessaging (WSRM) specifications, a module bound to ebMS V3

Response to a public review of the public draft of ebMS V3 was finished in January 2007, and it was put to a vote in February and March. After the second PR, it will be put to a final vote in or after April 2007.

2) Study interoperability verification tests for ebXML solutions complying with the ebMS V3 specifications

This WG has conducted interoperability verification tests of ebXML solutions owned by related organizations or vendors in Japan and other Asian regions, in order to settle ebXML in Asia, in collaboration with the e-Business Asia Committee (eAC).

The conventional tests comply with the current ebXML Message Service specifications, or the ebMS V2 specifications. Following the standardization of the ebMS V3 specifications, the WG started to work on the following two test specifications so that tests can be conducted according to the latest specifications:

- Interoperability verification test specifications complying with the ebMS V3 specifications
- Reliability conformance test specifications complying with the WSRM specifications

Information on the ebMS V3 specifications obtained through these standardization activities is summarized in the related ECOM Activity Results Report as the "ebMS V3 Client Solutions Configuration Manual."

(2) Research on EC/EDI Client Solutions

- Research on EC/EDI client solutions that can be applied to small and medium-sized companies and digital documents

In FY 2006, the WG researched various ebMS V3-based PC client solutions owned by leading groups or vendors and digital documents. The WG conducted hearings on client server solutions that provide client server compatible messaging service functions, client solutions beyond them, and digital documents related to these solutions with related groups or vendors. As a result, the WG compiled the "Client Solution Guide" in the related ECOM Activity Results Report. In this guide, the functions and applications these solutions are sorted out, and points to weigh up when selecting a solution are clarified so that companies can select an appropriate one depending on their conditions.

Digital documents are documents based on "UNeDocs," standard electronic documents promoted by the UN with an aim to utilize the characteristics of both paper documents and digital data by putting XML data on electronic paper.

Categories of solutions, related groups or vendors who provide these solutions, and solution names are listed in Table 1.

Future Plans

In FY 2005 and FY 2006, the WG researched PC client solutions that can be introduced in small and medium-sized companies, and made proposals to the OASIS.

In FY 2007, the WG will develop the above-mentioned interoperability verification test specifications of ebXML solutions, and conduct tests according to the specifications after conducting tests in the eAC and gaining its approval. These solutions will be made public after their interoperability is verified, and their introduction guidelines will be issued.

Table 1. Categories of Solutions, Providers, and Solution Names

Solution category	Provider/solution name
ebMS client solution	Japan Electronics and Information Technology Industries Association (JEITA) / Common Client Software
	Common XML/EDI Practice Promotion Council (COXEC) / Common XML/EDI Framework
SOAP-RPC*1 client solution	Distribution Systems Research Institute (DSRI) / Next-Generation Standard EDI System
SMTP*2 client solution	LEDIX*3/SMTP Compliant Short Messaging Service
	Hong Kong University Open Source Community (CEDIC) / ebMai
Digital document	Adobe Systems Incorporated / PDF digital documents
	Microsoft Corporation / Share Point Server and Office digital documents

*1 SOAP is an abbreviation of Simple Object Access Protocol, and is messaging service (communication method) specifications in WS. RPC is an abbreviation of Remote Procedure Call. SOAP-RPC is a pull-type messaging service function that allows clients to receive data from servers.

*2 SMTP is an abbreviation of Simple Mail Transfer Protocol. It is a protocol for transferring data over the Internet.

*3 LEDIX is a general term for the Projects for Promoting Information Technology in Leading Areas sponsored by the METI in FY 2004 (International Standardization Projects for EDI Infrastructures in Import and Export and Domestic Logistics).
This solution is one of the results of the projects.

Practical B2B-EC Framework Study WG

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Next Generation Electronic Commerce Promotion Council of Japan

Working Group

Overview of Activities

In FY 2004, electronic commerce (EC) in Japan grew to 102.7 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-EC 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-EC 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.

Based on the current B2B-EC standards and Internet technologies, the WG conducted the following analyses for building a practical B2B-EC framework that resolves various problems of the current B2B-EC systems and for promoting its use in small and medium-sized companies:

- Analysis of survey data of the current conditions of EDI
- Analysis of case examples of standardization of industry EDI
- Survey on the actual conditions of EDI in small and medium-sized companies
- Survey on EDI solutions

Table 1. History of Activities of the "Practical B2B-EC Framework Study WG"

Meeting	Date
Description of activities	
First	July 24, 2006
Agreement on the themes of activities (current situation surveys and definition of a framework), task assignment, and schedule	
Second	September 13, 2006
Hearing of the activity reports of the IT Management Supporters as part of a survey Discussion of the definition of EC to be covered by the framework	
Third	October 26, 2006
Report of an EDI-ASP survey. Report of EDI solutions with added values for companies receiving orders	
4th	December 18, 2006
Report of an EDI-ASP survey. Agreement on the structure of the B2B-EC Framework Guide and assignment of writing tasks	
5th	February 8, 2007
Review of the report draft (B2B-EC Framework Guide)	

Based on the survey results, the WG worked on a B2B-EC framework that provides a common EC platform, with a view to promoting the introduction of the international standards on EC technologies (Table 1).

Activity Results

What should be a common EC platform that can contribute to the promotion of IT management? Looking at the current state of EDI, the following issues were identified:

1) Is data transmission through communication lines linked to business processing in companies?
   - In some companies, EDI is no more than a means of information transfer, and separated from their business processing systems.
2) Is information used in a way that business processes such as placing orders, delivery, billing, and payment are linked to each other?
   - Designed separately for individual transactions, EDI does not contribute to the optimization of the whole company.
3) Is information exchanged or shared between companies in production, distribution, maintenance, or recycling?
   - EDI has started to be used in some supply chains, but information is not shared over the entire product lifecycle.
4) Have small and medium-sized companies also participated?
   - According to the "Basic Survey on the Current Conditions of Small and Medium-sized Companies in 2005" (Small and Medium Enterprise Agency), only 4.7% of small and medium-sized companies surveyed have introduced EC.
5) Is the continuity of information retained between different countries?
   - While the division of labor has been promoted in Asian regions in some manufacturing industries, they have difficulty in grasping exactly where products are or schedules and have to have a month's inventory in their countries.

Relatively large companies have introduced EDI in some business processes, where work efficiency is improved. However, EDI has not yet contributed to the optimization of the whole business management of a company or of a whole industry.

In these circumstances, the WG hypothesized about requirements to be met by a common B2B-EC platform in the Japanese industrial world as follows:

1) Different companies can work in conjunction with each other through seamless information exchange.
2) When companies work in conjunction with each other, the continuity of information exchanged is retained across all transactions from production planning to receiving and placing orders, shipment, delivery, and payment.
3) Coordination of work is expanded to cover a wider range, producing many value chains in the industrial world.
4) Through information links, all companies that work in conjunction with each other can participate in information exchange regardless of the industry or the company size.
5) Information can be linked between different countries.

These requirements suggest that a common B2B-EC platform should range across all work domains (horizontally and vertically), cover all industries and companies of all sizes, be internationally accepted, and provide electronic information exchange that enables seamless coordination of work between companies.

This WG defined the B2B-EC framework as follows:

"In information exchange between companies in B2B-EC, business information mutually agreed is exchanged for coordination of work mutually agreed by an expression method mutually agreed according to an operation procedure mutually agreed over an electronic document transmission system mutually agreed."

The framework to realize EC consists of five frames ("business process collaboration" "business semantics" "syntax solution" "process collaboration profile" and "messaging service") as shown in Figure 1.

These frames implement specific system components to fulfill their respective roles. These components include sbMS, AS2, and RNIF for the "messaging service" frame, and CII messages, EDIFACT messages, and XML statements for the "syntax solution" frame. In order for companies to exchange information for EC, the same components must be implemented in the same frame, or interoperability between these components must be achieved through conversion or another method.

The common B2B-EC platform aims to identify components widely used in these frames and to provide methods for interoperating different components with each other.

Summary

The research on the B2B-EC framework worked on for 2 years since FY 2005 reaches a certain point when the "EC framework" is established.

In the subsequent years, the standard frames ("business process collaboration" "business semantics" "syntax solution" "process collaboration profile" and "messaging service") should be established and improved based on this framework, and a mechanism by which these frames are provided to the industrial w

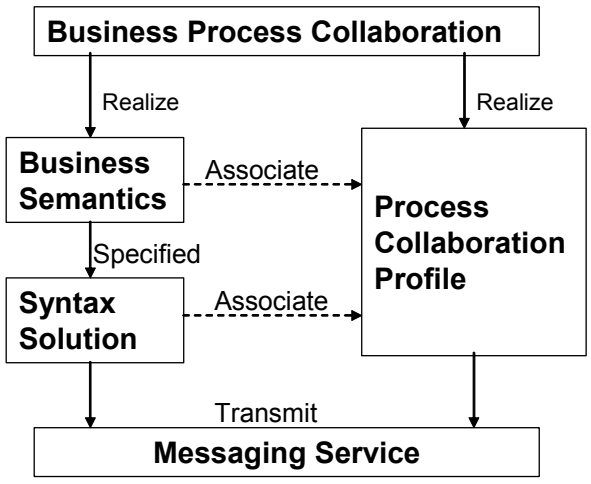


Figure 1. B2B-EC Framework

International Relations Group

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

International Relations

Overview of Activities

The International Relations Group carries out activities with the objectives of ensuring international collaboration and communication regarding EC and promoting international EC. In FY 2006, the Group launched the Japan-Korea RFID/Traceability Information Exchange Meeting as a joint activity on RFID tags between Japan and South Korea. At the same time, the Group carried out survey activities, specifically a "survey on the conditions of overseas EC promotion," and a "survey on the trends of the EC market in China." An overview of these activities is provided below:

Activity Results

(1) Collaboration with Overseas Organizations Promoting EC

In FY 2006, the International Relations Group worked in collaboration with overseas organizations related to EC, especially with South Korean organizations, as in the previous years. In June, the ECOM participated in the Next Korea e-Business International Conference held in Seoul, South Korea upon request of the sponsor or the Korea e-Business Association (KOEB), with which the Group has worked together, and ECOM Secretary General Kataoka gave a congratulatory speech in the opening ceremony. Around the same time, the first Japan-Korea RFID/Traceability Information Exchange Meeting was held. The meeting was established and held by the ECOM of Japan and the KOEB of South Korea after previous arrangements with aims to promote joint activities on RFID/Traceability between Japan and South Korea and to jointly work on common issues. In this meeting, South Korea gave presentations on the RFID industry in South Korea, policy trends, the trends of standardization of RFID, and case examples of introduction of the technology in the auto industry. Japan introduced the results of the RFID tag field trial conducted by the METI and the results of a study on ensuring of privacy conducted by the Diffusion Promotion & Social Acceptability Studies WG of the ECOM.

In August, the Group accepted an inspection delegation of Korean government officials and medical experts sent to promote the introduction of RFID in the medical field. They visited hospitals affiliated to medical schools to observe advanced cases of RFID introduction.

In September, the second Japan-Korea RFID/Traceability Information Exchange Meeting was held in Tokyo. Japan introduced the policy trends of the METI and presented a summary of the field trial in 2006. South Korea presented a summary of the IT Innovation Network Construction Project promoted by the Ministry of Commerce, Industry and Energy (MOCIE) and introduced case examples of RFID introduction.

In October, the Group participated in the e-Biz Expo 2006 held in Seoul, South Korea. It sent keynote speakers to the conference, and ECOM director Takedahara gave a congratulatory speech.

In the exposition, the ECOM set up a booth this year again. In FY 2006, activities of the ECOM were introduced in a larger booth. In addition, RFID tags were explained under the main theme of the Hibiki Project, which attracts interest also in South Korea, through displays in the booth, and panels to introduce the RFID tag field trial were also displayed. This could be achieved with collaboration from the member companies of the ECOM. As part of the opening ceremony, Korean government officials and other VIPs visited the ECOM's booth, and explanations could be given through displays in the presence of the press.

In November, the third Japan-Korea RFID/Traceability Information Exchange Meeting was held as the Japan-Korea EC Promotion Council, a major event of joint activities between Japan and South Korea, in Pusan, South Korea.

Japan introduced two case examples of RFID introduction and gave a presentation on operational guidelines, and South Korea gave a presentation on technical trends and introduced a case example of RFID introduction. The Group was also involved in support activities for holding the 9th meeting of the Japan-Korea EC Policy Dialogue and the 7th meeting of the Japan-Korea EC Law Expert Round Table.

In March 2007, the fourth Japan-Korea RFID/Traceability Information Exchange Meeting was held in Tokyo. In this meeting, the both countries gave presentations on multi-code management in RFID systems in addition to those on case examples and the status report of the field trials, and the

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

Date	Host Country (City)	Activity Description
June 2006	South Korea (Seoul)	Participate in the Next Korea e-Business International Conference
June 2006	South Korea (Seoul)	Hold the first Japan–Korea RFID/Traceability Information Exchange Meeting - South Korea and Japan reported on the policy trends and the field trial, respectively.
September 2006	Japan (Tokyo)	Hold the second Japan–Korea RFID/Traceability Information Exchange Meeting - Japan and South Korea reported on the policy trends and a government project, respectively.
October 2006	South Korea (Seoul)	Participate in the e-Biz Expo 2006 - Set up the ECOM's booth and introduce the Hibiki Project, etc.
November 2006	South Korea (Pusan)	Hold the third Japan–Korea RFID/Traceability Information Exchange Meeting - Report on case examples of RFID introduction in both countries, etc.
March 2007	Japan (Tokyo)	Hold the fourth Japan–Korea RFID/Traceability Information Exchange Meeting - Report on multi-code management, etc.

participants had an active exchange of views.

With regard to collaboration efforts with Taiwan, the ECOM carried out collaborative activities for the 6th Joint Meeting of the Japan-Taiwan EC Promotion Committee, held in Tokyo in December. In FY 2007, the Committee plans to hold another meeting in Taiwan 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

According to data presented by Global Industry Analysts (GIA), a research company, the global EC market grew in size to $12.1979 trillion in 2005. After that, the market is projected to grow at a compound annual growth rate (CAGR) of 84.41% to $87.6129 trillion in 2008 (Figure 1). The EC market has grown at a higher growth rate in comparison to increases in the number of Internet users. For example, the number of Internet users has increased between 2003 and 2004, and 2004 and 2005 by 19.0% and 19.5%, respectively. On the other hand, the growth rates of the EC market in the same periods are 69.0% and 75.7%, indicating that the EC market has expanded drastically in comparison to increases in the number of Internet users.

2) EC market trends in the United States

According to data presented by GIA, the United States EC market in 2005 was $4.7427 trillion, and is estimated to reach $6.9485 trillion in 2006 and $15.0824 trillion in 2008. On the other hand, the Canadian EC market, projected to grow steadily, expanded from $239.2 billion in 2005 to $350.5 billion in 2006, and is expected to reach $759.9 billion in 2008 (Figure 2).

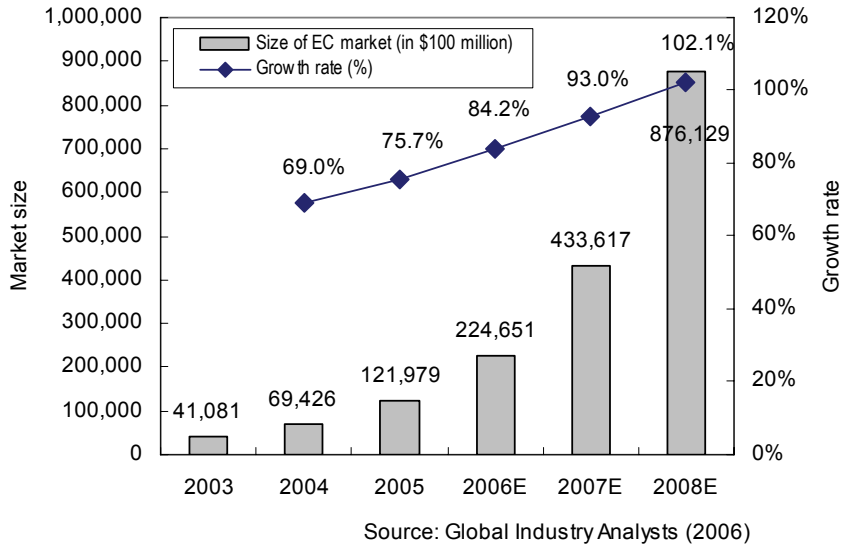


Figure 1. Global EC Market Growth Forecast

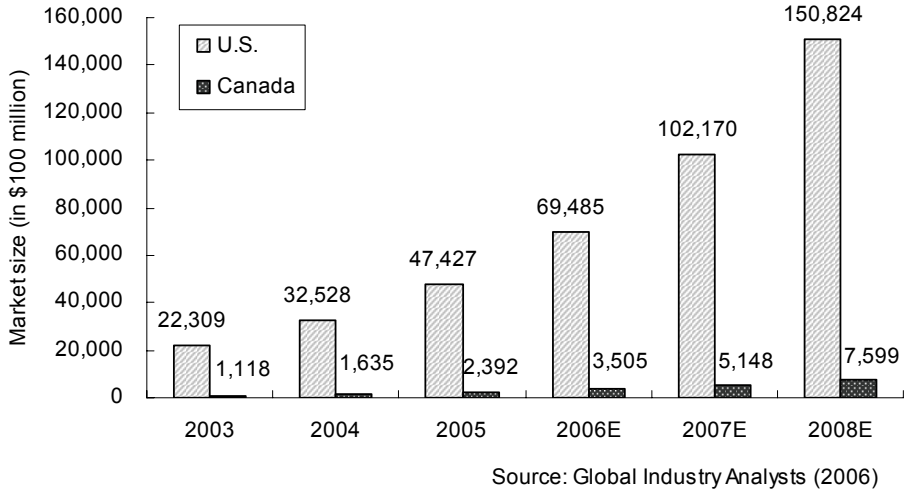


Figure 2. EC Market Growth Trends in the U.S. and Canada (2003–2008 (Expectation))

3) EC market trends in Asia

According to data presented by GIA, the entire EC market in the Asia-Pacific region is projected to greatly grow from $3.7527 trillion in 2005 to $44.7526 trillion in 2008. The EC market in Japan, which leads the Asia-Pacific region, was $2.1739 trillion in 2005 and is projected to grow at a CAGR of 142.64% to $31.1895 trillion in 2008. This figure accounts for 69.7% of the entire EC market in the Asia-Pacific region (Figure 3).

4) EC market trends in Europe

According to data presented by GIA, the entire EC market in Europe is expected to greatly grow from $2.8203 trillion in 2005 to $17.2368 trillion in 2008 (Figure 4). On the other hand, EITQ, a research organization that specializes in the European ICT market, predicts that the market will grow in size by slightly more than 100% over the period, suggesting large uncertain factors in the growth of the EC market in this region.

5) Progress of EC promotion in Japan and other countries and research institutes

By 2004, the U.S. and most of other advanced Internet nations in Europe, and the Asia-Pacific region have completed the development of laws and guidelines that provide the basis for EC, such as e-signature laws that give legal weight to electronic signatures, or laws to protect privacy over the Internet. With the rapid progress of globalization of EC, various forms of cooperative systems have been increasingly strengthened.

In these countries, many research centers in universities involved in research and development of EC have come to consider EC as a large category of e-business instead of focusing only on EC. This trend is especially prominent in the U.S. Some research centers established specifically to study EC are now incorporated into other ICT-related research centers. In Europe and Canada, some research centers have been working on the use of EC for regional developments.

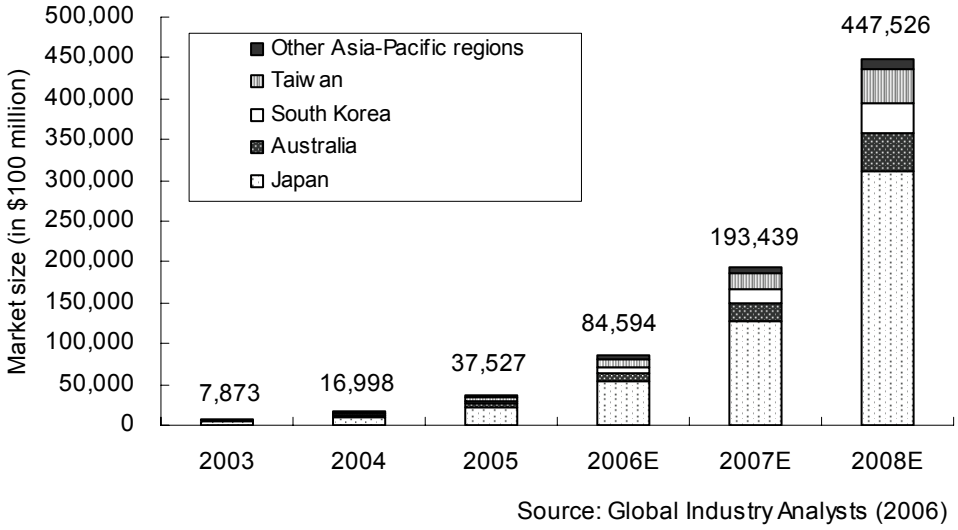


Figure 3. EC Market Growth Trends in the Asia-Pacific Regions (2003–2008 (Expectation))

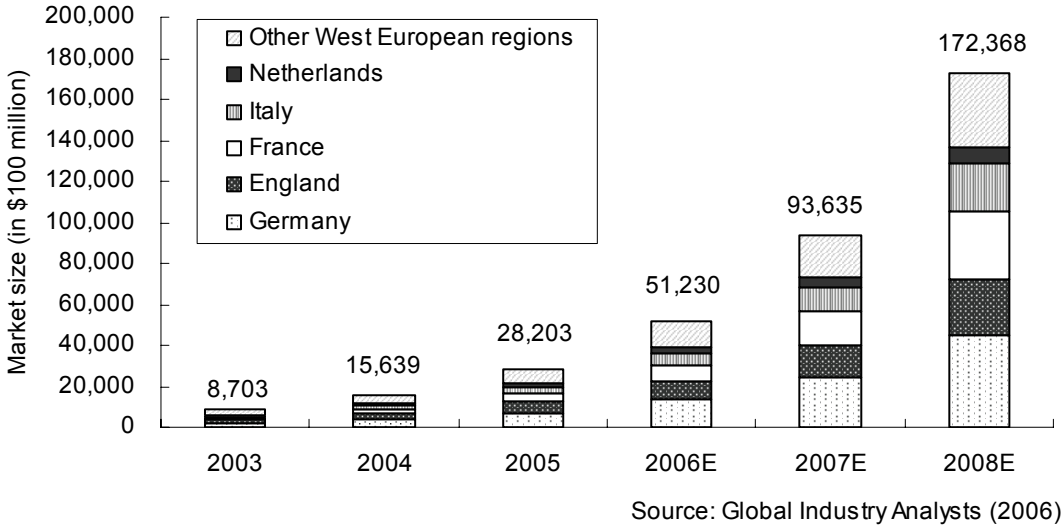


Figure 4. EC Market Growth Trends in Europe (2003–2008)

(3) Latest EC Trends in China

As of the end of December 2006, the ratio of Internet users in Chine to the population of the country was 10.4%, which is lower than the world average of 16.7%, but the number of Internet users in the country supporting EC increased by 26 million from the previous year to 137 million. The CARG of China is still over the world average, and indicates that the number of Internet users in China has been increasing at a pace making the country close to the U.S. with the largest Internet population in the world (Table 2, Figure 5).

1) Environments surrounding EC

Over the past year, systems on credit in EC have been developed. The "Basic Database of Corporate and Personal Credit Information," a nation-wide, networked database, was launched, and the E-business Affairs Credit Assessment Center, established in November 2005, went into full-scale operation. Information on companies that passed the credit assessment of the center can be now checked. On the other hand, the national strategies on computerization up through 2020 were announced, and encouraging small and medium-sized companies to participate in the EC market, swiftly improving environments to form EC value chains, and widely promoting EC on a long-term basis are now included in the government's basic policies.

2) Market trends

a) Expanding EC market

According to an estimate by iResearch, a leading research firm in Shanghai, the total value of EC in China has reached 678.5 billion RMB (about 11 trillion yen) in 2005, and is expected to reach 14.78 trillion RMB (about 230 trillion yen) in 2010. It seems that the market has gone through the development phase, and entered the high-rate growth phase (Figure 6). In a hearing with the China Electronic Commerce Association, it was revealed that the EC market in China has exceeded 1 trillion RMB (about 16 trillion yen) in 2006. On the other hand, CCID, a government research organization, estimates that the market will grow to as little as 5.2342 trillion RMB (about 80 trillion yen) in 2010.

b) B2B market

According to an estimate of iResearch, the total B2B transaction value increased 106% from the previous year to 650 billion RMB (about 10 trillion yen) in 2005, and the ratio of the total B2B to EC transaction values is 95% (The total B2B transaction value in Japan was 140 trillion yen in 2005).

Table 2. Numbers of Internet Users in Major Countries

	Number of Internet users (in one million)		CARG (02 to 06) (%)	Global share in 2006 (%)	Population in 2007 (in one million)	Internet penetration rate (%)
	2002	2006				
U.S.	162.1	210.1	6.7	19.1	302.0	69.6
China	59.1	137.0	23.4	12.5	1,317.4	10.4
Japan	53.0	86.3	13.0	7.9	128.6	67.1
Germany	34.5	50.6	10.0	4.6	82.5	61.3
India	16.5	40.0	24.8	3.6	1,129.7	3.5
England	32.0	37.6	4.1	3.4	60.4	62.3
South Korea	26.5	33.9	6.4	3.1	51.3	66.1
Whole world	609.4	1,098.5	15.9	100.0	6,574.7	16.7

Source: http://www.internetworldstates.com (The data was partially corrected.)

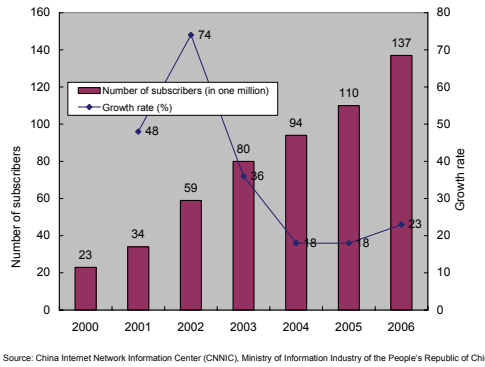


Figure 5. Changes in the Number of Internet Users in China

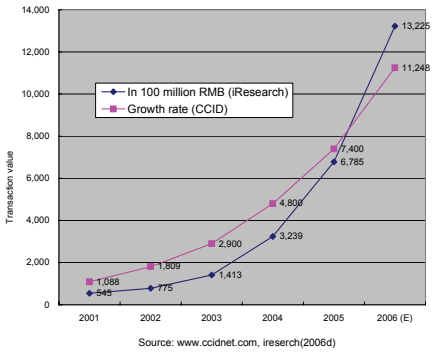


Figure 6. Trends and Projections of EC Transaction Values (B2B + B2C/C2C) in China

iResearch estimates that the B2B transaction value reaches to 14.47 trillion RMB (about 220 trillion yen) in 2010 (Figure 7). This rapid expansion of the B2B market is because about 30 million small and medium-sized companies that have been behindhand in computerization started to awake to EC following the rapid economic growth and improved EC environments. According to iResearch, as of the end of 2005, the number of companies that have a record of B2B internet transactions reaches 1.53 million, and the number will reach 3.06 million in 2010 (Figure 8).

c) B2C/C2C markets

The B2C market in China is expected to grow to 46 billion RMB (about 700 billion yen) in 2010 (Figure 9). A rapidly increasing number of individuals, especially of young generations, have participated in EC. The number of users registered with a C2C service doubled from the previous year to 22.45 million in 2005. The number is expected to reach 72 million in 2010 (iResearch).

3) Payment trends

According to the China Electronic Commerce Association, electronic payment showed special development (refer to the related ECOM Research Report) in 2006, greatly contributing to the development of EC in China. The "Working Group on Electronic Payment Standardization" was organized in the association, and they have studied electronic payment. Currently, the following two methods of payment can be used in EC in China:

- Online payment: Bank card (B2C), credit card (B2C, small amount B2B transactions), cellular phone (B2C)
- Offline payment: Bank/post office transfer (B2C, most B2B transactions), cash on delivery/credit card (B2C), payment by a cellular phone or mobile POS terminal (B2C)

Payments for most B2B transactions are made offline, but online payments are increasingly seen for small amount transactions between companies that have built a relationship of trust with each other. In EC as well as traditional businesses in China, credit poses a major problem. A typical way of new business, resolving this problem is third-party payment, where a third party serves as a business agent or a guarantee between parties involved and banks or credit card companies. Recently, third-party online payment service providers have gained power. Business models for third-party online payment services are divided into the following two: one is a model where a third party assumes the net banking functions of banks (conventional model) and another is a model where a third party has their own payment function that requires both parties involved to open their respective virtual accounts on the third party's platform (Paypal-type model).

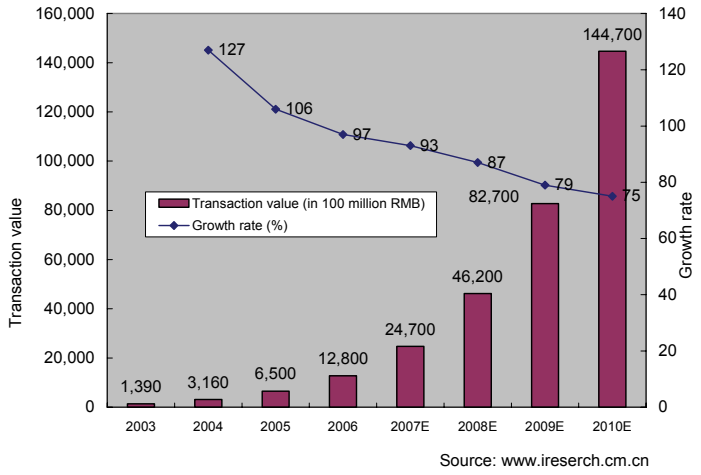


Figure 7. Growth Trends and Projections of the B2B EC Market in China

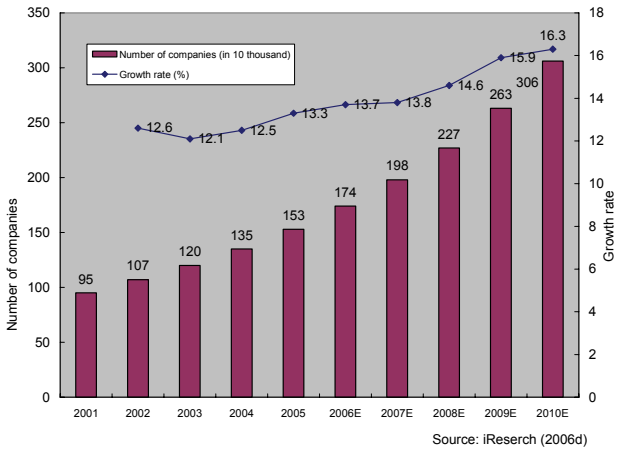
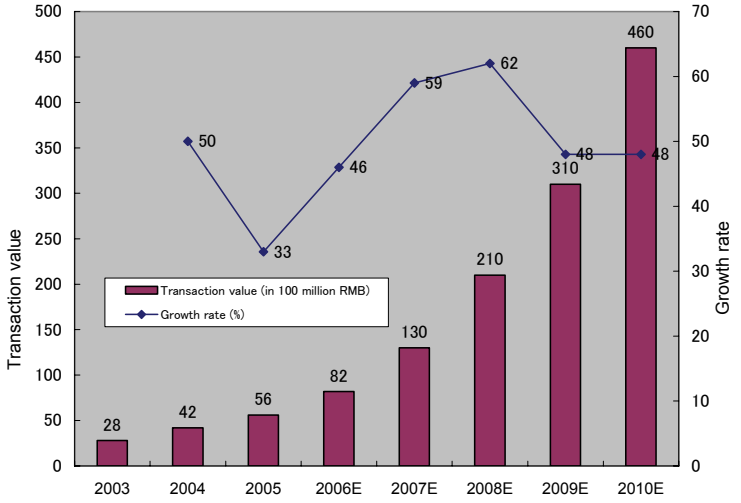


Figure 8. Changes in the Number of Companies That Have a Record of B2B Net Transactions

Third-party online payment service businesses have the following problems: a) users are required to pay commission charges to both a third-party payment agent and a bank, b) third-party payment agents compete with banks' net banking businesses, c) when a third-party payment agent takes care of deals, there is a problem with checking their reliability, and d) there are no regulations on the management of settlement funds accumulated in payment agents. On the grounds that third-party payment agents have similar functions to banks, the People's Bank of China announced the "Payment and Settlement Organizations Control Law (Draft)" intended to control third-party payment agents and other nonbanks. Although they are open to ideas, the law has not been enacted after over 1 year from the announcement. While the "18th Statistical Report on the Development of the Internet in China" shows that 73.8% of Internet users have experienced online payments, individuals related to local leading B2C companies say that only 20 to 30% of their users pay online, and 60% of their users pay on cash on delivery. Figure 10 shows the reasons why Internet users do not pay online. The biggest reason is that they are concerned about safety and reliability. This is because consumers are worried about privacy risks associated with online payments or a loss of money due to erroneous operations or the theft of personal information such as account numbers. Currently, the safety of data or transactions is a major issue in Internet businesses in China.

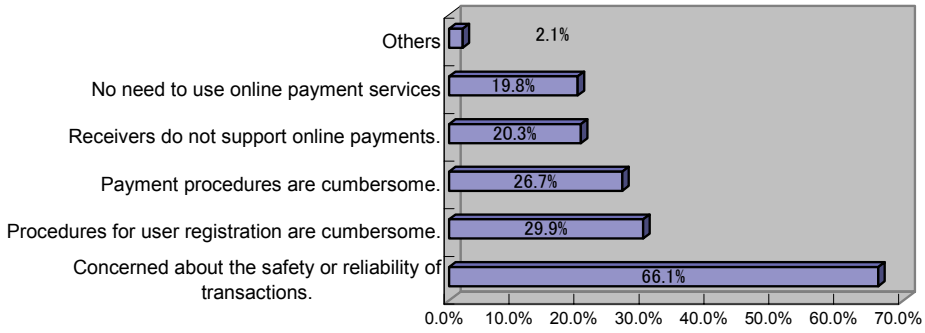
4) Future issues

In 2005, the total EC transaction value doubled from the previous year. A major research firm in China estimates that the total B2B transaction value will increase by more than 20 folds in comparison to the value in 2005 to 220 trillion yen in 2010. In order to realize reliable and safe EC and its steady development in China, the development of laws, policies, economic infrastructures, and social environments for EC must be accelerated.



Source: iReserch (2006a)

Figure 9. Trends and Projections of the Development of the B2C Market in China (The above figures do not include online direct sales from manufacturers.)



Source: iReserch (2006e)

Figure 10. Reasons Why Internet Users Do Not Pay Online

International RFID Tag/Traceability Joint Research Activities
– Enhancement of Logistics Efficiency and Use of RFID in Supply Chain in Asia –

Masakazu Fujita, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Research Activity

Overview of Activities

In order to understand the current state of RFID tag use in Asian countries and extract issues to address based on the results of a "Study into the Possibility of Using RFID Tags in ASEAN Member Countries," a project sponsored by the METI in FY 2004 and FY 2005, and to help to promote the utilization of RFID tags for improving the efficiency of logistics in Asia, the ECOM planned and held the 5th Asian Forum for Information Technology (AFIT) Thematic Session. The ECOM also offered the results of this effort and other information widely through the CEATEC 2007 conference, the International Distribution Competitiveness Partnership Conference, and the JETRO (Japan External Trade Organization) Latest IT Trend Seminar and other events or magazines, newspapers, and other news media.

Activity Results

(1) Overview

Amid ongoing economic globalization, Asia has increased its presence in the world as a "growth center of the world," as a "production base," as a "market," and as an "investment destination."

However, logistics costs in many Asian countries are extremely high in comparison to those in Japan, the U.S., or Europe, and it is a task of pressing urgency for companies conducting global business activities to improve logistics efficiency in supply chains so that products can be swiftly and efficiently brought to markets from production bases. It is no exaggeration to say that logistics efficiency decides international competitiveness.

In these circumstances, the ECOM conducted field surveys in 10 ASEAN countries in a period from October 2004 to March 2006 under the theme of a "Study into the Possibility of Using RFID Tags (RFID) in ASEAN Member Countries," sponsored by the METI according to the agreement of the economy ministers of Japan and ASEAN countries. In FY 2006, based on the results of these surveys, the ECOM planned and held a Thematic Session as a new attempt in the 5th AFIT attended by key persons for IT policies and experts from 16 Asian countries. In the Thematic Session, the ECOM shared information and discussed with experts from participant countries under the theme of "Enhancement of Logistics Efficiency and Use of RFID in Supply Chain in Asia." As the manager of this project, the author hosted an online forum over a period of 3 months, and then arranged for a panel discussion in the general meeting.

(2) AFIT

1) What is the AFIT?

The AFIT is hosted by the Center of the International Cooperation for Computerization (CICC) as a network for sharing information and exchanging opinions on a lot of common issues to address to promote computerization in Asia, and has been held annually since 2002. In 2006, timed to coincide with the CEATEC JAPAN held in the Makuhari Messe, the 5th AFIT was held in Makuhari, Chiba on October 3 and 4, and attended by representatives of 16 Asian countries responsible for IT policies. If the holding of the Asia Forum for Standardization of Information Technology (AFSIT), the predecessor of the AFIT, is included, this is the 20th forum. This time the ECOM co-hosted the AFIT and took charge of the Thematic Session launched to discuss hot issues in addition to conventional, general sessions for discussing IT policies. An overview of the whole AFIT and the Thematic Session is described below:

2) Member countries and history of the AFIT

Currently, the AFIT consists of 19 member countries/regions: Bangladesh, Cambodia, China, Hong Kong, India, Indonesia, Japan, South Korea, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Singapore, Sri Lanka, Thailand, and Vietnam.

In the previous meetings of the AFIT, participants had exchanged views on IT policies and trends in the member countries or other topics and had discussions on a certain theme set for each meeting as given below:

Picture 1. Participants in the 5th AFIT

- 1st AFIT/2002 Laos (Vientiane)
  "Actuality and Issues of E-Government Scheme in Asia"
- 2nd AFIT/2003 Mongolia (Ulan Bator)
  "IT Policy and Personnel Training"
- 3rd AFIT/2004 Thailand (Bangkok)
  "IT Management Indices"
- 4th AFIT/2005 The Philippines (Cebu)
  "IT Professional Human Resource Development"

(3) 5th AFIT

1) New approach "Thematic Session"

Previously, the member countries had exchanged information and views only in general meetings held annually. This time, however, the Thematic Session was launched with an aim to promote continuous sharing of information or common awareness of issues through an online forum (Internet-based forum using a mailing list and shared databases) or visiting members.

Experts were called from the 19 member countries/regions to discuss a specific issue or the theme of "Enhancement of Logistics Efficiency and Use of RFID in Supply Chain in Asia." Specifically, after points for discussion were narrowed down by information provision by and questions and answers between the experts through the online forum, a panel discussion was conducted and extracted issues were reported in the general meeting. After the general meeting, information will be updated continuously through the online forum and passed to the next year.

2) Proceedings and results of the AFIT

The 5th AFIT was held in Makuhari Green Hotel on October 3 and 4, 2006 according to the following schedule:

October 3	Morning: Keynote Speeches
	Afternoon: Thematic Session
October 4	Morning: General Session
	Afternoon: CEATEC Conference/ Visit the CEATEC JAPAN

After sharing information and aligning levels of awareness through the following four keynote speeches, the Thematic Session was entered:

- "New IT Reform Strategy"

  Koji Kainuma, Deputy Director-General for IT Strategy Commerce and Information Policy Bureau, Ministry of Economy, Trade and Industry
- "Next Generation e-ID Card in Japan"

  Nagaaki Ohyama, Professor at the Tokyo Institute of Technology
- "RFID Utilization in Asia – Current Status and Issues"

  TAN Jin Soon, Executive Director, GS1/EPCglobal Singapore
- "Logistics Situation in ASEAN"

  Yoichi Kato, President of the JETRO Bangkok

In the Thematic Session, the enhancement of logistics efficiency in supply chains in Asia and utilization of RFID tags were discussed to extract issues with a view to proposing methods for collaborating between Asian countries to address the extracted issues. The Thematic Session was participated in by Singapore, Thailand, Vietnam, South Korea, China, Japan, India, which just provided information, and Sri Lanka, which also just provided information.

After the "current status and issues" were explained by the participant countries, the "current status and issues of logistics in Asia" were raised by JETRO Bangkok President Kato, and "approaches to RFID tags in Japan" were explained by CICC Singapore director Yamauchi, a panel discussion was conducted, where vigorous discussions, including a question and answer session involving those present in the conference room, were held.

Picture 2. Panel Discussion

An outline of the discussion is given below:

It is a task of importance and pressing urgency for Japanese companies and other foreign and local companies making vast investments in businesses in Asian countries to enhance the efficiency of logistics in supply chains in strengthening their competitiveness, and the enhancement of logistics efficiency produces a lot of benefits (The ratios of macro logistics costs to GDP in 2004 in Japan, North America, EU, Asia, China, and ASEAN 4 were 8.3%, 11.6%, 9.8%, 19.7%, 20.8%, and 19.0%, respectively (METI/Japan Institute of Logistics Systems)).

On the other hand, looking at the current status of utilization of RFID tags, cases of enhanced efficiency of logistics within a company have been reported, and their safety and security have become increasingly recognized. However, when it comes to their application to supply chain logistics across different companies, a lot of issues must be cleared, and they are still at a trial stage.

After a discussion among panelists from the participant countries and representatives in the General Session in the conference room, issues to address for enhancing the efficiency of supply chain logistics and using RFID tags for the purpose came to the surface.

The following six issues were extracted:

a) Introduction cost

b) Recognition of the importance of RFID tags and enhancement of the efficiency of logistics

c) Development of human resources engaged in logistics services or handling RFID tags

d) Standardization and collaboration

e) Development of laws and infrastructures

f) Introduction of IT necessary to apply RFID tags to supply chains

Finally, those present agreed that they would continue to address these extracted issues via the online forum. "Standardization and collaboration" were took up in the Conference for the Asian IT Standardization held in Singapore on November 2 and 3, 2006 under the sponsorship of the CICC.

Through these discussions, the participants in the panel discussion reported and summarized the current status of introduction of RFID tags in their respective countries. Their reports include a lot of valuable information released for the first time, which complements the above-mentioned surveys on the 10 ASEAN countries (refer to the related ECOM Activity Results Report) and provides an overview of the whole Asian region.

The current status of introduction of RFID tags in these countries is outlined in Table 1. For more details, refer to the "5th AFIT Thematic Session Report."

3) Future expectations

a) New issues on enhancement of logistics efficiency and security and utilization of RFID tags

Since the September 11, 2001 attacks, the U.S. government has strengthened antiterror measures. As for security measures related to trading, the Department of Homeland Security (DHS) has worked on new requirements such as the 24H rule (cargo declaration forms must be submitted 24 hours prior to lading), the Customs-Trade Partnership Against Terrorism (C-TPAT), and the Cargo Security Program (CSP). The strengthened security in the U.S., which is an important market for Japanese and other Asians companies, increases time required for procedures for importing or exporting and requires the costs of responding to those measures, causing increases in logistics costs. To reduce these logistics costs, it is important to negotiate between the governments on the conditions, but RFID tags, used as a technical infrastructure, can be a powerful tool to reduce the costs. In order for Asian companies to develop global businesses efficiently in this severe environment, the public and private sectors must work strategically on the enhancement of efficiency of international logistics in collaboration with each other.

Table 1. Current Status of Introduction of RFID Tags in Asian Countries

China	13.56Mhz 2.45GHz (Other frequencies are to be determined in the near future.)	Ministry of Information Industry of the People's Republic of China (MII)	• Railroad vehicle management • Postal package management • Pet health information • Second generation ID card • Coal miner safety management
South Korea	135KHz 13.56MHz 433MHz 908.5-914MHz 2.45GHz	Ministry of Information and Communication (MIC)	Field trials: • Intelligent retail management system • Project for improving the efficiency of clothing supply chains • Special drug tracking • Importing and exporting country project
Singapore	135KHz 433MHz 866-869MHz 920-925MHz 2.45GHz	Infocomm Development Authority of Singapore (IDA)	CFC (field trial Call for Collaboration) • Health Information Exchange • Trade Exchange • Information at Airport & Port • Digital Manufacturing • Supply Chain e-SCM • Wireless Broadband Network
India	13.56MHz 868-930MHz 2.45GHz/5.8GHz	Ministry of Communications (MC)	
Sri Lanka	13.56GHz 868-869MHz 920-924MHz (Updated on November 13, 2006.)	Telecommunications Regulatory Commission of Sri Lanka (TRC)	• RFID for exporting in the apparel industry
Thailand	13.56MHz 433MHz 920-925MHz	National Telecommunication Commission of Thailand (NTC)	• e-Port • Rice traceability • Shrimp traceability • Domestic animal ID and farm information management system • e-Passport
Vietnam	Proposed frequencies (To be determined in the beginning of 2007.) 13.56MHz 866-868MHz 920-925MHz	Ministry of Posts (MP)	

b) Roles of Japan in Asia

While economic collaboration between two countries, between Japan and the ASEAN, among the ASEAN + 3, among the ASEAN + 6, and among the APEC is considered, the facilitation of procedures for trading must also be promoted. Actually, the 10 ASEAN countries have already worked on the standardization of declarations and the realization of single-window or one-stop declaration, and have promoted a project based on the agreement among the governments that they will build the ASEAN Single Window to connect between six countries and between all the 10 countries in 2008 and 2012, respectively.

Leading in building systems for trading and port-related procedures, Japan is not always ahead of other Asian countries in globalization. Ports, airports, roads, and other infrastructures in Japan are far from superior to those in other Asian countries. Japan must develop these infrastructures first to ensure its competitiveness and consistency in physical and commercial distribution networks with other Asian countries. After that, Japan should fulfill the following roles to realize win-win relationships with other Asian countries:

- Plan strategies to strengthen international logistics in Asia
- Conduct field trials beyond boundaries between companies, industries, the public and private sectors, and countries
- Develop human resources engaged in IT or logistics services
- Share information on successful cases of application of RFID tags
- Contribute to international standardization
- Develop next-generation, highly functional RFID tags and provide opportunities for other countries to add add-on values

In 2006, the METI, the MLIT, the Finance Ministry, the Japan Federation of Economic Organizations, and other economic groups gathered to organize the International Distribution Competitiveness Partnership Conference, which has worked on strategies to strengthen Japan's competitiveness in international logistics. The author reported survey results in the conference. In the future, specific measures to improve Japan's competitiveness in international logistics will be reported. The author looks forward to the results of their efforts and will reflect them in messages from Japan in the next AFIT.

(4) Report of Activity Results

The ECOM prepared reports based on the results of the above-mentioned surveys on the 10 ASEAN countries and discussions in the AFIT, and offered the results of previous efforts widely through the CEATEC conference, the JETRO Latest IT Trend Seminar, magazines, newspapers, and other news media.

Presentations in the CEATEC conference and in the JETRO Latest IT Trend Seminar are summarized below:

1) Presentations in the CEATEC

The ECOM participated in the CEATEC RFID conference "From RFID Tags to Next-generation RFID Technology" held in Makuhari Messe on October 4, 2006, and offered and exchanged information on the results of discussions in the AFIT and the status of introduction of RFID tags in Asia.

In this conference, after speeches by four lecturers, a panel discussion was held to discuss the direction of RFID tags in the future.

The speeches and lecturers are given below:

- "Efforts of the METI for Disseminating RFID Tags"

  Masahiko Fujiwara, Director of Information Economy Division, Commerce and Information Bureau, Ministry of Economy, trade and Industry

- "Toward the Dissemination of RFID Tags"

  Osamu Nakamura, Professor at Keio University

- "From Hibiki Tags to Next-generation RFID Technology"

  Hiroshi Nakajima, Vice Division Manager, Hitachi, Ltd.

- "Direction of Utilization of RFID in Asia"

  Masakazu Fujita, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

METI Director Fujiwara participated in the panel discussion as a coordinator, and Professor Nakamura, Vice Division Manager Nakajima, Research Director Fujita, and Akira Shibata, chairman of the ISO/IEC JTC1/SC31 in Japan, participated in it as panelists. The panelists had vigorous discussions of the current status and issues of utilization of RFID tags in the Japanese, U.S., European, and Asian markets, requirements to satisfy, and technical trends from the standpoint of panelists under the theme of "Potential of RFID – New Society and Businesses Brought About by Automatic Recognition Technologies."

Picture 3. Panel Discussion in the CEATEC

2) JETRO Latest IT Trend Seminar
– Current Status of Introduction of RFID Tags and Comparison Between Asia and North America –

The Japan External Trade Organization (JETRO) Latest IT Trend Seminar was held in Tokyo, Nagoya, and Osaka in a period from February 26, 2007 to March 1, 2007. In this seminar, hosted by the JETRO and sponsored by the Center of the International Cooperation for Computerization (CICC) and the Japan Electronics and Information Technology Industries Association (JEITA), the ECOM gave a presentation about the results of its efforts.

This seminar was held with an aim to introduce the latest trends of RFID tags in Asia and the North America and the results of cross-border field trials of RFID tags conducted by Japan. The following three speeches were given:

- "Latest Trends of RFID Tags in Asia (Review of the Merits of RFID Tags Through Field Trials, etc.)"

  Toru Yamauchi, Director, JETRO Singapore

- "Trends and Market Conditions of RFID Tags in the U.S. (Case Examples of Introduction by Major Players, etc.)"

  Shinya Fujii, Deputy Director, JETRO New York

- "Current Status and Issues of Application of RFID Tags to Enhance Logistics Efficiency in Asia"

  Masakazu Fujita, Research Director, Next Generation Electronic Commerce Promotion Council of Japan

The well-timed speech, given under the themes of "application of RFID tags to logistics" and "comparison between Asia and the U.S.," got a substantial response.

Picture 4. JETRO Latest IT Trend Seminar (Osaka)

A total of more than 210 people visited the three sites. According to the Secretariat, the full number was reached soon after the application period was started, and more people would have participated in the seminar without space limitations. According to questionnaire surveys after the seminar, satisfaction levels of more than 90% were achieved in all the sites (especially, a satisfaction level of 98% was reached in Tokyo).

(5) Prospects in FY 2007

The 6th AFIT is scheduled for October 22nd and 23rd. The ECOM aims to propose an RFID tags introduction plan for enhancing logistics efficiency, based on the results of the previous efforts, in the autumn forum. To this end, the ECOM will promote further information sharing and deeper discussions with other Asian countries and complete this plan for the forum. Other new initiatives on RFID tags are under study, and the ECOM will make further efforts with an eye on them.

Public Relations Group

Kazuhiro Kawashima, Research Director,
Next Generation Electronic Commerce Promotion Council of Japan

Public Relations

Overview of Activities

The Public Relations Group released information to ECOM members and others, mainly regarding the activities of the ECOM through ECOM seminars (executive special seminars and monthly seminars), ECOM News and the ECOM Web Site as in the previous year. At the same time, the Public Relations Group held seminars in collaboration with related organizations.

Activity Results (Reports)

(1) ECOM Forum 2006

On May 24, 2006, the "ECOM Forum 2006" was held at the Nihon Toshi Center (Hirakawa-cho, Chiyoda-ku, Tokyo). On that date, a total of 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, and Mr. Yoichi Kato, Director of the Information Economy Division of the Commerce and Information Policy Bureau at the Ministry of Economy, Trade and Industry, gave a guest speech. These were followed by keynote speeches with an emphasis on the future activities of the ECOM, by Mr. Nagaaki Ohyama, Professor at the Tokyo Institute of Technology (Intellectual Member of Advanced Information and Telecommunication Society Promotion Headquarters) and Mr. Toshiro Kawamura, Senior Executive Vice President & Member of the Board of NEC Corporation. In the afternoon session, the general managers of the WGs and the ECOM's research directors gave presentations on the results of activities in FY 2005.

The Forum featured the exhibition and distribution of catalogues of EC-related products supplied by member companies. As a special program, photographs of the 8th METI RFID Tag Field Trial in FY 2005 were displayed. Table 1 shows the speech program in the Forum.

Table 1. ECOM Forum 2006

May 24, 2006 Morning Session

ECOM Forum 2006 – Opening Address and Guest and Keynote Speeches
Opening Address
Yukiharu Kodama, Advisor of the Next Generation Electronic Commerce Promotion Council of Japan (ECOM) (President of the JIPDEC)
Guest Speech
Yoichi Kato, Director of the Information Economy Division of the Commerce and Information Policy Bureau at the Ministry of Economy, Trade and Industry
Keynote Speech 1 New IT Reform Strategy and the Need for New Authentication Services
Nagaaki Ohyama, Professor at the Tokyo Institute of Technology (Intellectual Member of Advanced Information and Telecommunication Society Promotion Headquarters)
Keynote Speech 2 The Progress of Ubiquitous Society and IT/Network Strategy
Toshiro Kawamura, Senior Executive Vice President & Member of the Board of NEC Corporation

Afternoon Session

Report of the Activities of the ECOM in 2005	
IT Utilization, Traceability, and Standardization	e-Government, Individual Authentication, Actual State of EC
RFID Tag International Standardization Topics and ISO Standard Proposal Activities	Three-Year ADR (Alternative Dispute Resolution) Activities at ECOM and Future Plans
FY 2005 METI RFID Tag Field Trial Liaison Meeting – Based on the Results of the FY 2004 Field Trial –	Enforcement of Personal Information Protection Law and Contemporary Issues
Privacy Protection to Guarantee RFID Tag Diffusion	Report on the Interoperability Plug Test of the Long-Term Digital Signature Format
EDI in the Internet Age	The Current Status of Company Administrative Procedures and Electronic Application Issues – Proposals to Diffuse Electronic Application –

(2) Executive Special Seminars

Three executive special seminars were held for board members. Table 2 shows the dates, topics and lecturers of those seminars. Outlines of the lectures were posted on ECOM News to share the information among ECOM members. In the first executive special meeting, a lecture about the progress of globalization, the meaning of the globalization, issues in management, and approaches to the issues was given under the title of "Responding to the Universalization and Individualization That Accompany Globalization." In the second executive special meeting, held as an event related to the establishment of the "Information Security Day," a lecture about the "Basic Plan for Information Security" aimed at building the world's most advanced information security nation, and the "Secure Japan 2006" was given under the title of "Current Status of Information Security Policies in Japan." In the third executive special meeting, a lecture about how new initiatives for RFID tags/EC have been promoted or worked on was given under the title of "METI's Undertakings Concerning RFID Tags and

Table 2. Executive Special Seminars

Seminar	Date, Time and Location/Lecture Topics and Lecturers
First	December 19, 2006, 15:30 – 17:00, Kikai Shinko Kaikan Building
	Responding to the Universalization and Individualization That Accompany Globalization Hikari Sugiura, Chief Consultant, Industrial Strategy Group, Mitsubishi Research Institute, Inc
Second	February 9, 2007, 15:30 – 17:00, Tokyo Kaikan, Kasumigaseki
	Current Status of Information Security Policies in Japan – Towards a World-class Information Security State – Masahiko Kobayashi, Cabinet Counselor, National Information Security Center (NISC)
Third	February 27, 2007, 15:30 – 17:00, Tokyo Kaikan, Kasumigaseki
	METI's Undertakings Concerning RFID Tags and EDI Masahiko Fujiwara, Director of Information Economy Division, Commerce and Information Bureau, Ministry of Economy, Trade and Industry

EDI." For more details, refer to ECOM News No. 22 to No. 24.

(3) Monthly Seminars (ECOM Seminars)

In FY 2006, 11 monthly seminars were held. Four seminars were related to RFID tags/traceability, three seminars were related to safe, secure EC, two seminars were related to utilization of IT, one seminar was related to overseas activities and another one seminar was related to the development of technological infrastructures. Table 3 shows the dates, lecture themes, numbers of participants for the ECOM monthly seminars held in FY 2006. A total of 1086 individuals attended the 11 FY 2006 ECOM seminars (In FY 2005, 10 ECOM monthly seminars were held and a total of 1084 individuals attended the seminars). The numbers of participants in the 16th and 17th monthly seminars, held on the same day as other seminars held by related organizations, were fewer than usual. Seminars could not be held in June and December, and more than one seminar was held in September and February instead. This is a reason why the number of participants did not increase. The 19th seminar was sponsored by six related groups.

The ECOM conducted a questionnaire survey of those who attended the seminars, and 54.3% of the participants or 590 participants responded to the questionnaire (In FY 2005, 60.7% of the participants or 658 participants responded to the questionnaire). The results of the questionnaire survey are summarized below:

1) Overall Seminar Planning and Management

As an average of all seminars, 17% of the respondents answered that it was "very good" (19% in FY 2005), 61% that it was "good" (62% in FY 2005), 14% that it was "neither good nor bad" (13% in FY 2005), and 1% that it was "uninformative" (1% in FY 2005). The seminars that had the highest percentage of participants who answered "very good" was the 17th seminar at 32% and the 13th, 15th, 19th, and 21st seminars at 20%.

2) "Evaluation of Lectures"

As an average of all seminars, 23.4% of the respondents answered that the lectures were "very informative" (28% in FY 2005), 59% that they were "good" (55% in FY 2005), 9% that they were "neither good nor bad" (10% in FY 2005), and 3% that they were "uninformative" (2% in FY 2005). The lectures that gained an extremely high level of support (or those with a high percentage of respondents who answered "very informative") were the lecture titled "Review and Reconstruction of the Personal Information Protection System – Personal Information Protection Management Systems That Comply with the New JIS Standard" in the 15th seminar at 60%, the lecture titled "The Progress of e-Government in Estonia – The Application of Public Key Infrastructure in Estonia" in the 17th seminar at 53%, and the lecture titled "Trends and Current Conditions of Use of RFID Tags in Asia – Current Conditions and Recent Trends of RFID Tag Use in Korea" in the 13th seminar at 47%.

Even though the ratio of respondents and the percentage of respondents who answered "very good" were somewhat lower than in the previous year, if the respondents who answered "good" are included, the seminars received almost the same evaluation as the previous year.

3) Future Themes

In the field of RFID tags/traceability, many respondents want to learn case examples, standardization activities, and technologies under the theme of approaches to RFID in other countries, advanced use of RFID, linkages between XML/EDI and RFID, or privacy issues. In the field of safe, secure EC, many respondents want to learn related laws or guidelines and case examples under the theme of the e-document law, internal control and document management, next-generation authentication infrastructures, ISMS, or personal information. In the field of utilization of IT, many respondents want to learn the results of market surveys as well as case examples under the theme of payment methods, e-government, authentication, or Web

Table 3. Outline of the ECOM Seminars

Seminar	Date	Theme	Number of Participants (Members/Total)
11	July 20, 2006	Internal Control and Document Management	100/110
12	September 1, 2006	E-commerce Trends in Japan	66/81
13	September 8, 2006	Trends and Current Conditions of Use of RFID Tags in Asia	72/80
14	September 26, 2006	Overview and Future Development of Hibiki Project – Debriefing Session of Hibiki Project –	129/181
15	October 13, 2006	Review and Reconstruction of the Personal Information Protection System	63/76
16	November 29, 2006	The Establishment of Shared Infrastructure for Electronic Commerce	67/82
17	January 17, 2007	The Progress of e-Government in Estonia	35/51
18	February 1, 2007	Measures for Promoting RFID Tags and Their Possible Utilization	152/160
19	February 6, 2007	Special Seminar in Commemoration of the First "Information Security Day"	96/144
20	February 23, 2007	RFID Tags and Protection of Privacy at the Consumer Contact Point	42/61
21	March 7, 2007	Overseas EC Trends Update	48/60

(4) ECOM News

ECOM News is a publication issued to allow readers to see the activities of the ECOM adequately from anywhere in a timely fashion. The contents have been improved in this fiscal year. In the middle of May 2006, an extra edition was issued to invite new activity members of the ECOM WGs. The outlines of lectures given in ECOM seminars have been reported within a month after the seminars, whenever possible, regardless of the volume of the edition. In FY 2006, ECOM activities extending over 180 pages (151 pages in FY 2005) were reported to the ECOM members.

In addition, more detailed information on ECOM activities has been offered through press releases, sending lecturers from the ECOM, contributing reports to other publications, letters from the Secretary General, editor's notes, and other articles. Table 4 lists articles posted in ECOM News.

Table 4. Articles Posted in ECOM News Issues

Issue Date	Major Topics Posted
April 2006 (No. 13) 13 Pages	• The First Planning Committee Meeting for FY 2006 Held! • Outline of the "Third ECOM Executive Special Seminar" – Proposals by Infosocionomics – • Report on "ETSI/TC ESI #13" • The Announcement of ECOM Forum 2006
May (Extra edition) 4 Pages	• We Invite Activity Members of the ECOM WGs. • Overview of the Activities Plan for FY 2006 • "ECOM Forum 2006" will be Held.
May (No.14) 12 Pages	• "ECOM Forum 2006" Held! • Results of Invitation for Activity Members of the WGs in FY 2006 • Reports of Activities in FY 2005 Made Public • Survey Results on the Response to the Act on the Protection of Personal Information
June (No.15) 15 Pages	• First ECOM Board of Directors Meeting and General Meeting Held! • Special Report "Future Developments in RFID Tags and ECOM" • FY 2006 Working Group (WG) Activities Start! • Report on Participation in the Next KOEB International Conference and Japan-Korea RFID/Traceability Information Exchange Meeting • Report on Participation in the e-Business Asia Committee – Tokyo Conference – • "ECOM Journal 2006" Issued • Introduction of the "Report of Surveys on the Actual Conditions of EDI in Japan and Other Countries in FY 2005"
July (No.16) 13 Pages	• Next Generation Electronic Commerce Promotion Council of Japan (ECOM) Activity Report – Part 1 – • Special Report "Our Gratitude to ECOM and Our Ambitions as a Board Member" • Outline of the "Eleventh ECOM Seminar" – Internal Control and Document Management – • "Fifth EPC RFID FORUM" held – Report Meeting of the Results of the FY 2005 METI RFID Tag Field Trial • Report on Participation in the 49th ISO/TC184/SC4/Toulouse Conference • "Survey of Privacy Statements Posted on the Websites of ECOM Members" • Introduction of New Website: "Easy Introduction to RFID Tags"
August (No.17) 12 Pages	• Next Generation Electronic Commerce Promotion Council of Japan (ECOM) Activity Report – Part 2 – • Special Report "Problems with the Further Development of Electronic Commerce" • Activity Report of Information Security Workshop "Trends of Information Security Policy by the Japanese Government" • Overview of WG Activity in FY 2006: ECOM Technological Infrastructure Development Group
September (No.18) 16 Pages	• Next Generation Electronic Commerce Promotion Council of Japan (ECOM) Activity Report – Part 3 – • Special Report "Sensor Network – Applications for an "e-Society"" • Results of Invitation for Public Participation in the "FY 2006 METI RFID Tag Field Trial Project" • Information Security Workshop Activity Report "Voice of E-commerce Users and Creeping Risks" • Overview of Lectures in the "12th ECOM Seminar" – E-commerce Trends in Japan – • Overview of Lectures in the "13th ECOM Seminar" – Trends and Current Conditions of Use of RFID Tags in Asia
October (No.19) 22 Pages	• Next Generation Electronic Commerce Promotion Council of Japan (ECOM) Activity Report – Part 4 – • Special Report "Benefits of Network-based RFID and Our Efforts for RFID" • Activity Report of Technological Infrastructure Development Group "Toward the Establishment of Shared Infrastructure for Electronic Commerce" • Results of an Invitation for Public Participation in the "FY 2006 METI RFID Tag Field Trial Project" Announced • Activity Report of e-Government & Business Collaboration WG "Improvement in Efficiency in Procedures in Relation to Corporate Employees" • Overseas Research Report "E-Government and E-Signature in Estonia and Denmark" • Brief Report of the 5th Asian Forum for Information Technology (AFIT) • Outline of Lectures at the "14th ECOM Seminar" – Overview and Future Development of Hibiki Project (Debriefing Session of Hibiki Project) – • Outline of Lectures at the "15th ECOM Seminar" – Review and Reconstruction of the Personal Information Protection System –
November (No.20) 13 Pages	• The 3rd Planning Committee Meeting for FY 2006 Held! • Special Report "IT-based Value Chain Reform" • Activity Report on the RFID Tag Field Operation Trials • The Committee Meeting for the Preparation of the JIS Draft for Long-Term Signatures • Outline of Surveys on Effectiveness Measurement Indexes in Relation to the Introduction of Electronic Commerce (EC) Both in Japan and the U.S.A. • The e-Biz Expo 2006 in Korea Participation Report • Report of the Pusan Meeting of the Japan-Korea EC Promotion Council • Report on Participation in the 50th ISO/TC184/SC4/Hershey Conference
December (No.21) 14 Pages	• Next Generation Electronic Commerce Promotion Council of Japan (ECOM) Activity Report – Part 5 – • Special Report "For Widespread Use of RFID Tags in the Future" • Activity Report of the Information Security Workshop "Risks Creeping up on Users and Risks Felt by Developers" • Outline of Lectures at the "16th ECOM Seminar" – The Establishment of Shared Infrastructure for Electronic Commerce –

January 2007 (No.22) 16 Pages	• The 4th Planning Committee Meeting for FY 2006 Held! • Special Report "New RFID Tags and E-Commerce Initiative – Solving Social Problems Through the Use of IT – • "1st ECOM Special Seminar for Executives" Lecture Outline – Responding to the Universalization and Individualization That Accompany Globalization – • Information Security Workshop Activities Report "Privacy Issues and e-Commerce in the United States – • "17th ECOM Seminar" Lecture Outline – The Progress of e-Government in Estonia – • Overseas Research Report "Trends in the Chinese E-Commerce Market"
February (No.23) 23 Pages	• The 5th Planning Committee Meeting for FY 2006 Held! • Special Report "Dialog with Works Brought About by Printing Technology and Information Processing Technology" • "2nd ECOM Special Seminars for Executives" Lecture Outline – Current Status of Information Security Policies in Japan – • "18th ECOM Seminar" Lecture Outline – Measures for Promoting RFID Tags and Their Possible Utilization – • "19th ECOM Seminar" Lecture Online – Special Seminar in Commemoration of the First "Information Security Day"
March (No.24) 21 Pages	• The 6th Planning Committee and 5th Board of Directors' Meeting for FY 2006 Held! • Special Report "Matsushita Electric Industrial's Efforts to Protect Private and Business Information" • Overview of the ECOM Activities Plan (Draft) for FY 2007 • Overview of the "3rd ECOM Executive Special Seminar" – METI's Undertakings Concerning RFID Tags and EDI – • "RFID Tags Promotion Seminar" Lecture Outline – Measures for Promoting RFID Tags and Their Possible Utilization – • The 4th Japan-Korea RFID/Traceability Information Exchange Meeting Held • Overseas Research Report "The Wave of Breach Notification Legalization from California across the U.S.A. and Throughout the World" • "JETRO Latest IT Trend Seminar" Lecture Outline – Current Status of Introduction of RFID Tags and Comparison Between Asia and North America – • Overview of Lectures at the "20th ECOM Seminar" – RFID Tags and Protection of Privacy at the Consumer Contact Point – • Overview of Lectures at the "21st ECOM Seminar" – Overseas EC Trends Update –

(5) ECOM Website

The ECOM uses its website (ECOM Web Site) as a platform for disseminating general ECOM information. The ECOM hopes to provide up-to-date information at all times through the ECOM Web Site, by updating "What's New" and other sections on a daily basis. Table 5 summarizes the information that has been released through the ECOM Web Site. Information that is disseminated on a regular basis includes ECOM News and ECOM seminar announcements and applications. Topics provided as latest information include press releases by the ECOM WGs and related government agencies. The website also contains the ECOM activity report for FY 2005, which describes the ECOM's activities in detail unlike this journal, along with intellectual properties of the old ECOM (ECOM activity reports for FY 2000 to FY 2004). 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. The number of those who acquired an ID for the ECOM member pages, which were revised drastically in the previous fiscal year, increased from 296 in the previous fiscal year to 370. The member web pages include information and tools needed to facilitate cooperation in ECOM activities, such as the ECOM Calendar. The e-conference room provides a place where ECOM members can exchange information with each other, gather opinions, or send/receive lecture materials handed out in related seminars or workshops.

(6) Other Activities

In addition to these main activities, the Public Relations Group has supported other groups as follows:

1) Assist in preparing press releases

   (Personal Information Protection WG, IT Utilization WG, etc.)

2) Introduce the activities of other WGs in related seminars or workshops

   (Introduction of a case example of Estonia (Ministry of Internal Affairs and Communications, Japan Federation of Economic Organizations), etc.)

3) Provide cooperation for RFID tags promotion seminars

   (Prepare materials for seminars in Osaka, Hiroshima, and Takamatsu, work at the reception desk, etc.)

4) Assist in preparing for an overseas expo

   (Prepare exhibitions for the e-Biz (South Korea), invite elucidators, etc.)

Summary & Future Plans

In FY 2006, the contents of ECOM News and the ECOM Web Site were further enhanced. On the other hand, the ECOM seminars could not attract an adequate number of participants. The Public Relations Group should collaborate with related organizations to enhance public relations activities.

In the next fiscal year, the Public Relations Group will continue to run the ECOM Web Site as a portal site for topics related to EC, RFID tags and traceability, as well as hold ECOM forums and ECOM seminars (monthly seminars). 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. It will also summarize and publicize activities for all the three years ending in FY 2007.

Table 5. Information Posted on ECOM's Web Site

Website (Japanese Version)
What's New! (announcements, such as seminars, workshops, research reports, etc.)
Press Releases (Four press releases related to ECOM)
Newsletters (ECOM News No. 13 to No. 24)
ECOM Seminar (Programs including history of seminars held)
Activity Reports (FY 2000 to FY 2005)
Research Reports, EC Events, Easy EC, Easy Introduction to RFID Tags
About ECOM (founding prospectus, main activities, member list (166 companies), etc.)
Global Website (English Version)
What's New! (Overseas Version)
ECOM News, Press Release, Journal
WG Annual Reports, Research Reports
Member (Exclusive) Web Pages Number of those who acquired a member ID: 370 (as of March 20, 2007)
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 materials for lectures)
e-Conference Rooms, ECOM Member ID (Issue Site), Membership Procedures
New Technical Site
Easy Introduction to RFID Tags
Long Term Storage PLUG TEST PROJECT
EC Legal Professional Round Table Between Japan and Korea

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