THE MEASUREMENT OF INFORMATION SOCIETY

SESSION 3

The Survey on ICT Usage and E-Commerce on Business in Japan

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I.   Summary

1.   This paper introduces Japanese experiences for the measurement of ICT usage in official statistics. **The Communications Usage Trend Survey** conducted by Ministry of Posts and Telecommunications (**MPT**) is the most popular official ICT sampling survey. And on the other hand, Management and Coordination Agency (**MCA**) has a plan to conduct regular major census: **the 2001 Establishment and Enterprise Census** in which ICT survey items are involved. I will summarize its pilot survey conducted in July 2000 from the point of view of developing internationally comparable statistics on the ICT usage in Business.

II.   Introduction

2.   "Information and Communications Technology (ICT) is one of the most potent forces in shaping the twenty-first century. Its revolutionary impact affects the way people's life, learn and work and the way government interact with civil society. ICT is fast becoming a vital engine of growth for the world economy. It is also enabling many enterprising individuals, firms and communities, in all parts of the globe, to address economic and social challenges with greater efficiency and imagination. Enormous opportunities are there to be seized and shared by us all." This is quoted from the beginning of "Okinawa Charter on Global Information Society" which was adopted in G8 Kyushu-Okinawa Summit Meeting 2000 held in Okinawa, Japan on 21-23 July 2000. Hereafter, governments are requested more efforts to foster an appropriate ICT policies: to stimulate competition and innovation, to protection of privacy for consumers and intellectual property rights for ICT related technology, to ensure to bridge the digital divide, and so on.

3.   In Japan, as well known, statistics of central government are prepared under the "Decentralized Statistical System" in which each national government organ compiles statistics on its own administrative fields of jurisdiction. For example, in the field of ICT products, Ministry of International Trade and Industry (MITI) compiles the statistics (Census of Manufacturing) on the industries manufacturing ICT equipment and goods, etc. In other hand, MPT compiles the statistics on the telecommunication industries. The Communications Usage Trend Survey is one of the most popular surveys.

4.   Under this system, ministries and agencies can plan and execute statistical surveys to meet their own administrative needs, however it is sometimes difficult to secure mutual coherence of statistics (including methodological, classificatory issues).

5.   As well as official statistics, private institutes have to great extent, carried out statistical descriptions of the use of ICT. In these surveys, different questions and methods have been used. Therefore, the results have produced different descriptions of ICT usage and which makes it difficult to obtain clear and internationally comparable picture of ICT usage in enterprises or households (see Table 1).

Table 1   Internet usage population in Japan/ diffused estimated figures

Unit:10 thousand persons

Source	Population	Survey Date
Ministry of Posts and Telecommunications: MPT	2,706	Dec.1999
Internet association of Japan (Private)	1,938	Feb.2000
Mitsubishi Research Institute, Inc. (Private)	2,045	Jun.2000

6.   Our main concern is, as well as the other countries, to development of comparable ICT statistics, which fulfills the policy need without increasing resources and reporting burden.

III.   **Communications Usage Trend Survey /MPT**

7.   The Communications Usage Trend Survey has launched in 1990, for the purpose to understand the actual status of postal services, telecommunications, and broadcast services usage, their trends, and the relationship between types of media for the purpose of policy planning of MPT. Many of the survey items related to ICT have been taken into it since later 1990's. This annual sampling survey has three types by subject. The summary of each survey is described in Table 2.

Table 2

Outline of the Communications Usage Trend Survey

	Survey on **Enterprise**	Survey on **Establishment**	Survey on **Household**
Initial survey year	1993	1990	1990
Periodicity	Yearly	Yearly	Yearly
Survey date	November, every year	November, every year	November, every year
Survey method	Mail (self-entry)	Mail (self-entry)	Mail (self-entry)
Coverage	All the enterprise with 100 employees or more (excluding "A Agriculture", "B Forestry", "C Fisheries" and "D Mining", according to JSIC) in Japan	All the establishment with 5 employees or more (excluding "46 Postal service" and "47 Telecommunications", according to JSIC) in Japan	All the household in Japan Household: a group of two or more persons sharing a dwelling and living expenses
Randomly selected samples :a	**3,000** enterprises are randomly selected for the Survey out of about 45 thousand appropriate enterprises. The sample enterprises are selected based on the systematic sampling method by industry stratified by employee's size.	**5,600** establishments are randomly selected for the Survey out of about 1.9 million appropriate establishments. The sample establishments are selected based on the systematic sampling method by industry stratified by employee's size.	**6,400** households are randomly selected for the Survey out of about 4.5 million appropriate households. The sample households are selected based on the two stage stratified sampling method by city size.
Number of effective respondents :b (rate; b/a)	**2,023 (67.4%)**	**4,186 (74.8%)**	**3,657 (57.1%)**

	Survey on **Enterprise**	Survey on **Establishment**	Survey on **Household**
Survey items (related matters of ICT)			
1. Connection rates from outside to telecommunications network inside enterprise	X		
2. Number of employee per terminal connected to LAN or Internet	X		
3. Objectives of constructing LAN or Internet	X		
4. Penetration rates and Objectives of use of Extra-net	X		
5. Penetration rates for ICT equipment		X	X
6. Use of Internet and PCs communications network	X	X	X
7. Use and objectives of VAN services	X		
8. Use of EDI	X		
9. Use of ISDN Line		X	X
10.Security measures for telecommunications network	X		
11.Costs on telecommunications network	X		
12.Monthly expenditure for use of domestic telecommunications services and broadcasting services		X	X
13.ICT equipment used by aged person			X
14.New information and Communications services hoped to use at home			X

(Note) 1. Number of effective respondents: 1999 Survey

      2. The 1998 questionnaire (original: Japanese) for enterprises with 100 to 299 regular employees, and for enterprises with 300 regular employees or more are attached as "Appendix 1-1"(page 13) and "Appendix 1-2"(page 21). The 1999 questionnaire has not been translated in English. In general, there are not significant differences between 1998 and 1999 version, except for the questions about Y2K problem.

International comparable ICT indicator

8.   In the last OECD/WPIIS meeting, "High priority for internationally comparable indicators for electronic commerce" was proposed by Mr. Peter Bøegh Nielsen, Statistics Denmark, and it was revised in DSTI/ICCP/IE/IIS(2000)3 REV1. As shown in Table 3, we may provide some data for proposed indicators from the result of the Communications Usage Trend Survey. They are in accordance with the "Readiness" and "Intensity" indicators proposed in OECD/WPIIS. While this paper describes only the "proportion"(percentage) of the various ICT usages, we are able to provide the "number" of them from the survey result.

Table 3 High priority for internationally comparable indicators for electronic commerce:
DSTI/ICCP/IE/IIS(2000)3 REV1

Source: 1999 Communications Usage Trend Survey (MPT)

Indicator	Enterprise	Establishment	Household
1. Number and proportion of economic units with computers		**X(a)**	**X**
2. Number and proportion of employment in economic units with computers			
3. Number and proportion of economic units with access to the internet	**X(b)**	**X(b)**	**X**
4. Share of employment in economic units with access to the Internet			
5. Number and proportion of economic units undertaking specific business processes/activities (*)			
6. Number and proportion of economic units with web site		**(c)**	
7. Number and proportion of economic units undertaking specific business processes/activities on web sites (*)		**X(d)**	
8. Number and proportion of economic units which recognize specific barriers to e-commerce	**X(e)**		
9. Number and proportion of economic units which consider that they would obtain specific benefits from e-commerce			
10. Number and proportion of economic units which plan to use Internet protocol-based networks	**X(f)**	**X(f)**	
11. Number and proportion of economic units planning to undertake specific business processes/activities (*)			
12. Number and proportion of economic units conducting sales/purchases orders over Internet protocol-based networks	**X(g-1)**		
13. Number and proportion of economic units conducting sales/purchases using other computer mediated networks		**X(g-2)**	**X**
14. Value of sales/purchases conducted over Internet protocol based network			
15. Value of sales/purchases conducted over other computer mediated network			
16. Proportion of sales/purchases conducted over Internet protocol-based network			
17. Proportion of sales/purchases conducted over computer meditated networks			

(Note) 1. In "Establishment" and "Household", the survey does not have a distinction between "Internet protocol-based network" and "computer meditated networks".
2. The definition of "specific business processes and activities" has not developed yet.

Summary results of the 1999 Survey on Enterprise/Establishment's ICT usage

9.   As shown in "Table 3", there are seven or eight modules (indicators) to which we may be able to provide the data on "Enterprise" and/or "Establishment". Now then, I will provide latest figures on each of them as follows: (a) - (g).

(a) Number and proportion of economic units with computers

   Only the data on establishment (Table 4) is available.

Table 4 The percentage of establishments using various communication devices

	1997 n=4,352	1998 n=4,010	1999 n=4,186
Personal computer	71.4	73.7	74.0
Cellular phone	59.0	67.3	66.1
PHS	11.0	12.2	8.9
Facsimile	93.5	93.2	94.7
Word processor	67.4	64.6	61.1

(b) Number and proportion of economic units with access to the Internet

Both of the data on enterprise (Table 5, Table 6 and Table 7) and those on establishment (Table 8 and Table 9) are available.

Enterprise

Table 5 The percentage of enterprises using Internet

	Using Internet		Planning to use Internet
	Totally: used in all over the enterprises	Partially: used in some establishments or sections	
1998 n=2,108	14.4	49.3	8.8
1999 n=2,023	27.5	50.8	7.5

Table 6 The percentage of enterprises using Internet/ by industry (1999) n:2,023

Industry	Using Internet		Planning to use Internet
	Totally: used in all over the enterprises	Partially: used in some establishments or sections	
Total	27.5	50.8	7.5
Construction	23.6	61.1	3.5
Manufacturing	34.4	52.7	5.0
Transportation and communications	16.5	40.7	10.0
Wholesale, retail sale and restaurants	20.8	55.0	8.7
Finance and insurance	25.2	65.0	1.3
Service industries and others	32.5	42.9	10.6

Table 7 The percentage of enterprises using Internet/ by size of employees

(1999) n:2,023

| Size class | Using Internet | | Planning to use Internet |
	Totally: used in all over the enterprises	Partially: used in some establishments or sections	
100-299	24.7	49.7	9.1
300-499	26.6	59.4	3.8
500-999	33.9	53.9	4.1
1,000-1,999	46.5	45.9	2.4
2,000+	51.9	44.1	0.9

Establishment

Table 8 The percentage of establishments using Internet

	1997 n:4,352	1998 n:4,010	1999 n:4,186
Using Internet	12.3	19.2	31.8
Planning to use Internet	28.6	32.0	33.1
Not needing to use Internet	36.8	43.0	29.6
No response	22.3	5.7	5.5

Table 9 The percentage of establishments using Internet/ by size of employees

Size class	1997 n:4,352	1998 n:4,010	1999 n:4,186
5-29	10.4	16.7	29.2
30-99	19.9	29.6	42.4
100+	32.5	48.3	61.8

(c) Number and proportion of economic units with web sites

There are some descriptions such as "Home-page"(Table 10) and "Advertisement by Homepage"(Table 16) in the multiple-choice responses on establishments, however in the present situation, the number and the proportion of economic units with web site are not available. It is necessary to process the micro data for these indicators on establishments.

(d) Number and proportion of economic units undertaking specific business processes/activities on web sites

Only the data on establishment (Table 10) is available.

Table 10
The percentage of establishments using information and communication media (1999)

	Home-page	E-mail	Mail	Telephone	FAX	Others
Advertising of commodities and events	16.0	3.7	52.2	32.9	27.8	35.9
Information providing for customers regularly	12.7	8.9	46.5	28.6	36.3	30.2
Sending a bill or statement for customers	-	2.6	87.8	14.8	30.1	12.7
Sending a receipts for customer	-	0.9	88.9	0.0	11.6	15.3
Recruitment of personnel	14.5	1.3	31.4	9.3	9.3	64.9
Reception of opinions, responses from customer	6.6	10.3	45.3	45.5	26.5	31.2
Reception of subscriptions, applications and/or entry	1.9	6.0	58.3	42.6	45.4	23.7
Investigation for consumer	1.7	4.1	65.3	12.7	29.0	33.3

(e) Number and proportion of economic units which recognize specific barriers to e-commerce

Only the data on enterprise (Table 11) is available. Each of the respondents picked up three barriers from the multiple-choice by giving priority: the first priority was given 3 points, the second was 2, and the third was 1.

Table 11 Barriers on the use of Internet and ICT (1999)   n: 1,739
Unit: percent

1 Risk of viruses	47.7
2 Securities	46.5
3 Costs and Prices	28.4
4 Troublesomeness for search topics	19.1
5 Confidentiality of e-transaction	12.3
6 Protection of intellectual property	6.1
7 Confidentiality of technology for certification	6.0
8 Timeliness of e-mail	6.0
9 Anxiety for the data transmission route	2.8
10 Others	2.7
11 Recognize no special barriers	3.5

(f) Number and proportion of economic units which plan to use Internet protocol-based networks

Both of the data on enterprise (Table 5, Table 6 and Table 7) and establishment (Table 8) are available.

(g) –1   Number and proportion of economic units conducting sales/purchases orders over Internet protocol-based networks

The data on enterprise (Table 12, Table 13 and Table 14) is available.
As for establishment, see (g)-2.

Table 12   The percentage of enterprises conducting sales activities over
Internet protocol-based networks (1999)

	Conducting sales activities	Planning to use Internet	No plan to use Internet	Have no knowledge for Internet	No response
n=1,739	25.4	16.2	56.1	1.0	1.3

Table 13   The percentage of enterprises conducting sales activities over
Internet protocol-based networks/ by industry (1999)

	Using Internet		Planning to use Internet
Industry	Including the use for the settlement of accounts	Excluding the use for the settlement of accounts	
Total	1.0	24.4	16.2
Construction	0.0	13.6	12.4
Manufacturing	0.8	22.5	14.6
Transportation and communications	2.4	18.0	14.6
Wholesale, retail sale and restaurants	0.4	23.6	22.2
Finance and insurance	7.2	39.9	12.1
Service industries and others	1.6	34.1	13.0

Table 14   The percentage of enterprises conducting sales activities over
Internet protocol-based networks/ by size of employees (1999)

	Using Internet		Planning to use Internet
Size class	Including the use for the settlement of accounts	Excluding the use for the settlement of accounts	
100-299	0.8	22.8	16.2
300-499	1.1	24.8	14.0
500-999	1.1	27.5	18.2
1,000-1,999	1.3	31.3	14.8
2,000+	3.9	34.4	16.6

(g)–2   Number and proportion of economic units conducting sales/purchases orders over Internet protocol-based networks/other computer meditated networks

Establishment

The result of Communications Usage Trend Survey shows the percentage of establishment using Internet and PC Communication Services (Table 15). However, in description of the type of usage, there are no distinctions "Internet protocol-based network" and "computer meditated networks"(PC Communications Service) as well as "Household survey" (Table 16).

Table 15 The percentage of establishments using Internet and PC Communications Service

	1997 n=4,352	1998 n=4,010	1999 n=4,186
(a) Internet	3.3	6.6	11.7
(b) PC Communications Service	3.1	6.4	5.1
(c) Both (a) and (b)	9.0	12.6	20.1
Total: (a)+(b)+(c)	15.4	25.6	36.9

Table 16 Type of usage on Internet and PC Communications
Service used by establishments

(n: 1,916/ Multiple responses) Unit: percent

1 Communication	56.9
2 Search and obtain information (accessing the out-side data base)	45.7
3 Advertisement by Homepage	36.3
4 Co-owner of information, electronic data exchange with other related company	24.9
5 Obtaining a software (free ware etc.)	11.8
6 Market research	9.1
7 Electronic transaction (Electronic money)	7.6
8 User support	5.7
9 On-line shopping for consumer	3.8
10 Internet telephony	2.1
11 Prize contest	1.5
12 Others	10.7
13 No response	7.7

IV.   New Approach in the Establishment and Enterprise Census by MCA

10.   As mentioned before, the Communications Usage Trend Survey (MPT) is to a certain extent, accordance with the proposed high priority indicators. However, it seems to be that there is certain insufficiency for international comparability due to the poorness on the number of samples. Covering the whole scale of economic units has no reality in terms of the statistical resources. In this context, it seems to be effective that existing major census incorporating ICT survey items would be conducted. It is expected to work out as a supplement to the Communications Usage Trend Survey. I introduce an experience of the data collection on ICT in which the survey item related primary "Electronic Commerce" activities on establishments is newly incorporated into the questionnaire of the existing Establishment and Enterprise Census conducted by MCA.

The Establishment and Enterprise Census

11.   The Establishment and Enterprise Census is one of the most basic statistical surveys such as population census in Japan. The purpose of this census is to clarify the basic industrial structure of national and regional levels by industry, employment size class etc, as well as to provide the directory of establishments and enterprises, which is used as the sample frame of various sample surveys on establishments and enterprises. The initial survey conducted in 1947, and from that time, it has conducted every 5 years, and simplified version is conducted in the years that intervene. The next survey will be conducted in 2001.

The pilot survey of the 2001 Establishment and Enterprise Census

12.　　We usually conduct a pilot survey in the previous year of the large-scale statistical survey or census, aiming for the realization of smooth and appropriate conduct of the full-dress census. And we often add some new survey items into it. For this time, the survey item "Electronic-Commerce" is one of them. Now, to measure ICT which includes electronic commerce is considered commonly to be a critical factor contributing to the analysis for national and global economic performance.

13.　　The pilot survey was conducted in July 2000, with a sample size of approximately 3,000 (1,951 establishments and 978 enterprises). The survey item related electronic commerce was applied to **978 enterprises** (see Table 17).

Table 17
Outline of the Pilot Survey of the Establishment and Enterprise Census

Survey date	1 July 2000
Survey method	Enumerator survey (self-entry)
Coverage	All the enterprise with 100 employees or more (excluding "A Agriculture", "B Forestry", "C Fisheries" and "D Mining", according to JSIC) in Japan
Randomly selected samples: **a**	**978** enterprises The sample enterprises are selected based on the systematic sampling method by industry stratified by employee's size.
Number of effective respondents: **b** (rate; **b/a**)	**898** enterprises 　　　(**91.8 %**)
Survey items (related matters of ICT)	(1) **Usage of "electronic commerce"** in which both "the electronic transaction conducted over computer-meditated networks" and/or "the Internet transaction conducted over Internet-protocol based networks" is included. **(2) Type of the transaction** 　　(a)　By partner: "B to B" or "B to C" 　　(b)　Content: i) Ordering, ii) Receiving orders, iii) Delivery or its arrangement, iv) After sales services, and others

(Note) The questionnaire of the pilot survey (original: Japanese) is attached as "Appendix 2"(page 30).

The definition of survey items

14.　　In the pilot survey, the definitions of survey item are regulated as follows (a–f). We adopted both of the definitions of electronic commerce: a broad definition (a electronic transaction conducted over computer-meditated networks) and/or a narrow definition (an Internet transaction conducted over Internet-protocol based networks) just as proposed in the OECD/WPIE & WPIIS, "Defining and Measuring Electronic Commerce: a Provisional Framework and a Follow-up Strategy"(DSTI/ICCP/IE/IIS(2000)3/REV1). It is because that we intended to delimit the appropriate range of electronic-commerce in order to ensure sufficient flexibility and quality of data. The partner

of electronic commerce was simplified into two categories: "business to business" and "business to consumers". The content on a transaction was also simplified: i) Receiving orders, ii) Ordering, iii) Delivery or its arrangement, iv) After sales services, and others. The wide and flexible definition shown as below has adopted in order to minimize the reporting burden, i.e. the respondents easily understand the definition of electronic commerce adopted in this pilot survey, and answer the questions smoothly. For respondents' better understanding, some explanations are made in a leaflet: "Instructions for Completing the Questionnaire" which was distributed to each respondent.

a. Electronic commerce:

Commercial transactions using the Internet or any other computer-mediated network
(Even if only "Receiving orders", or "Ordering", or "Delivery or its arrangement", or "After sales services, and others" is conducted on use of the Internet or any other computer-mediated network, it is considered electronic commerce.)

b. Computer-mediated networks other than the Internet:

These networks include EDI, Extranets, CALS, POS systems, etc.

c. Receiving orders:

Receiving the orders for purchasing, delivery, production, and/or others of goods and services

d. Ordering:

Giving the orders for purchasing, delivery, production, and/or others of goods and services

e. Delivery or its arrangement:

Transmitting services such as music, reflections, and E-mail newspapers, or arranging the delivery of goods

f. After sales services, and others:

Transactions, not included from a. to e., such as after sales services of the purchased goods and services and others

Towards the 2001 Census

15.   While the analytical work on this pilot survey has not yet been completed, it should be noted that the proportion of effective respondents indicates considerable rebel: 91.8 %, which encourages the realization of regular Census incorporated with the new items on electronic commerce. It is anticipated that the survey items and definitions of the 2001 Establishment and Enterprise Census will be in line with that adopted in the pilot survey.

V.   Future tasks

16.   The Nordic experiences such as the developing "Model Questionnaire on Usage of ICT"(DSTI/ICCP/IIS(2000)6) seems to be a highly harmonized tool for internationally comparative

ICT data collection on enterprises among candidate countries. It would also cover a great extent of user requirements. In this context, OECD/WPIIS intends to get into the work for re-examine the proposed "High priority indicators for electronic commerce", and a pilot data collection would be undertaken in near future. The Statistics Bureau and related other Ministries: MITI, MPT, etc. would be willing to take part in this activity.

17.   Regarding the present situation in Japan, as well as many other countries, the statistical work for measurement of ICT and electronic commerce has just started. While Japan plays a large part of the ICT industries, a certain amount of data items of proposed indicators would be unavailable, and in addition, most of the available data still remain in the area of "Readiness" indicators, except for a few related "Intensify" at the present time. Several approaches including new data collection activities may be taken for higher policy need on ICT, but it should be noted that the issues regarding the statistical resources and the reporting burden should be carefully taken into account. Otherwise, there would arise a concern for the data quality.

18.   For example, it is thought that generally, most part of enterprises/establishments will be hardly able to respond to any of the qualitative questions such as "Value of sales/purchases conducted over Internet protocol-based/other computer meditated networks" except for a small part of enterprises its activities are mainly operated by electronic means. The low response rate makes it difficult to ensure a quality of statistics. It seems to be need to make further exmination regarding the proposed priority indicators from this aspect as well as development of common weighting principals among countries.

Communications Usage Trend Survey Questionnaire (Enterprises)

(Enterprises with 100 to 299 regular employees)

Management and Coordination Agency Approval No. 21257	Approval Expiration January 31, 1999

Ministry of Posts and Telecommunications (1998)

Communications Usage Trend Survey Questionnaire
(Enterprises)

> ? *This survey is an approved survey under the Statistical Reports Regulation Law, the results of which will be used for the creation of statistical information only. Please feel free to answer candidly.*

In filling out this survey, please pay attention to the following points.

1. Please complete this survey as of November 1, 1998.
2. Please return completed surveys (or make inquiries) to:
   New Information Center, Inc.
   Ebisu IS building 1-13-6 Ebisu Shibuya-ku, Tokyo 150-0013
   Tel: 03(3473)5231, Fax: 03(3473)5353
3. This survey is being conducted by the above survey company for the Ministry of Posts and Telecommunications.

(Place name/address sticker here)	Department	
	Person	
	Telephone	

Question 1 - Regarding Internal communications network

(1) Has your enterprise installed a LAN or Intranet? Please circle the appropriate number.
For the purpose of this survey, an Intranet and LAN are considered separate networks (i.e. LAN does not include Intranet).

	Yes, throughout the enterprise	Yes, in some establishment or department	No, but there are firm plans to do so	No, and there is no plan to do so
? LAN	1	2	3	4
? Intranet	1	2	3	4

If you circled number 3 above, please go to (5). If you circle 1 or 2, please continue from the next question.

(2) Can your enterprises network be accessed from outside through the use of a PDA (Personal Digital Assistants) ? Please circle the appropriate number for each type of network separately.

	Yes, access is possible	No, but there are firm plans to do so	No, and there is no plan to do so
? LAN	1	2	3
? Intranet	1	2	3

(3) How many users are there per terminal connected to your LAN or Intranet? Please circle the appropriate number.

1. One user per terminal	2. Two users per terminal	3. Three users per terminal
4. Four users per terminal	5. Five or more users per terminal	

(4) What types of problems are recognized in connection with LAN or Intranet use in your enterprise ? Please enter up to three numbers in the order of importance.

```
1. Security measures are difficult to establish
2. Increasing cost of training network maintenance personnel
3. Insufficient network maintenance personnel
4. Recovery from difficulties takes too long
5. Creation of information for public release is difficult
6. Takes time to connect to the server
7. Difficult to prevent leakage of sensitive internal information
8. Have not achieved good results from introducing the system
9. Other
10. No problems
```

First		Second		Third	

(5) For what purpose was a LAN or Intranet installed in your enterprise ? Please choose up
to 3 items in the order of importance.

```
 1. Implementation of internal information and data exchange
 2. Share applications within the enterprise
 3. Sharing computer peripherals (printers etc)
 4. Increase speed of information distribution
 5. Implementation of groupware and workflow systems
 6. Implementation of e-mail
 7. Implementation of documentary authorization system
 8. Implementation of finance/accounting system
 9. Implementation of television conference system via personal computer
10. Simplify wiring system
11. Downsizing
12. Increase work speed
13. Reduce cost of paper and personnel
14. Other
15. No particular problem
```

First		Second		Third	

(6) Does your enterprise use an Extranet? Please circle the appropriate number.

1. Yes	2. No,but there are firm plans to do so	3. No,and there is no plan to do so

If you circle 1 or 2 above, please answer question (7).

(7) For what purpose does your enterprise use an Extranet? Please enter up to three numbers in the order of
importance.

```
1.  Share customers information between related enterprises
2.  Implement workflow system with related enterprises
3.  Remote access connectivity
4.  Joint operations and joint planning with other enterprises
5.  Implement electronic commerce
6.  Implementation of electronic data interchange (EDI)
7.  Expand number of trading partners
8.  Other
```

First		Second		Third	

Question 2 - Regarding online services and the Internet

(1) Does your enterprise use online services or the Internet? Please circle the appropriate
number.

	Yes, throughout the enterprise	Yes, in some establishment or department	No, but there are firm plans to do so	No, and there is no plan to do so
? Online services	1	2	3	4
? Internet	1	2	3	4

(The next question is only for those enterprises who use the Internet)
(2) What concerns have you experienced regarding Internet usage? Please enter up to 3 items

in the order of degree of concern from highest to lowest.

> 1. Takes time and effort to research information
> 2. Uncertainty about intellectual property protection
> 3. Worry about virus infection
> 4. Worry about security
> 5. Uncertain about the reliability of authentication technology
> 6. Data transmission path is unknown
> 7. Uncertain about the reliability of electronic payment methods
> 8. Not sure when e-mail will arrive at its destination
> 9. Communication costs are high
> 10. Other
> 11. No particular dissatisfaction

First		Second		Third	

Question 3 - Regarding e-mail

(1) Does your enterprise use e-mail (including e-mail via the Internet)? Please circle the   appropriate number.

1. Yes, internally	2. Yes, internally and externally
3. No, but there are firm plans to do so	4. No, and there is no plan to do so

(If you circled 1 or 2 above, please answer the next question)

(2) What type of e-mail system is employed? Please circle all answers that apply.

1. In-house system (includes related enterprises)	2. External online service
3. External VAN center	4. Internet

(Multiple answers are acceptable)

Question 4 - Regarding VAN services

(1) Does your enterprise use a VAN service? Please circle the appropriate number.

1. Yes, enterprise-wide	2. Yes, some establishment or department use
3. No, but there are firm plans to do so	4. No, and there is no plan to do so

(If you circled 1 or 2 above, please answer the following question)

(2) How does your establishment employ VAN services? Please circle all answers that apply.

1. Private WATS (Wide area telecommunications service) network
2. Facsimile transmission
3. LAN to LAN access
4. E-mail
5. Access external database
6. EDI
7. Order Placement System
8. Access overseas networks
9. Network operation, administration, and maintenance
10. Other

(Please circle all answers that apply)

Question 5 - Regarding EDI (Electronic Data Interchange) (*) usage

(1) Does your enterprise use EDI (Electronic Data Interchange)? Please circle the appropriate   number.

  (*) Note: EDI (Electronic Data Interchange) refers to a method of using computers to exchange communication and transaction data between different enterprises using a widely recognized standard convention.

1. Yes   2. No, but there are firm plans to do so   3. No, and there is no plan to do so

(If you circled 1 above, please go to (2). If you circled 2 or 3 above, please go to (3).

(2) Does your enterprise use EDI employing the Internet? Please circle the appropriate number.

1. Used for all operations   2. Used in some operations   3. Not used

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If you circled 1 or 2 above, what reason does your enterprise have for using an EDI that employs the Internet?

```
1. Overseas operations is easy
2. Cross-platform compatibility
3. Easy to operate
4. Low communication costs
5. Develop new customers, Expand business
6. Increase the number of applications that use e-mail etc.
7. Other reason
```

(The next question is for all enterprises)

(3) What problems do you consider to exist in the diffusion of EDI? Please enter up to three numbers in the order of magnitude of the problem.

```
1. Specialized knowledge is required to establish a system
2. Communications protocol differs from industry to industry
3. Documentation formats differ from industry to industry
4. The exchangeable data types are limited
5. Security is insufficient
6. Facility investment burden is too great
7. Running cost is high
8. Unprepared for EDI implementation
9. Electronic commerce law is incomplete
10. Company communication system is insufficient
11. Lack of information regarding EDI
12. Other
13. No particular problem
14. Not sure
```

First		Second		Third	

Question 6 - Regarding communication network security measures

(1) What measures is your enterprise taking in regard to data security on your   communication network? Please circle all answers that apply.

```
1. Password access control
2. User verification via personal or department ID
3. Line monitoring
4. Encryption device
5. Data encryption
6. User verification via authorization technology
7. Use a VPN
8. Firewall
9. Proxy server
10. Security inspection service
11. Other measures
12. Not sure because it is subcontracted to another company
13. Not taking any particular measures
```

(Please circle all answers that apply)

(2) What type of anti-virus countermeasures is your enterprise taking? Please circle all   answers that apply.

```
1. Introduction of a client-side virus-scanning program
2. Introduction of a server-side virus-scanning program
3. Installment of a virus wall for connecting with outside
4. Other
5. No countermeasures taken
```

(Multiple answers are acceptable)

(The next question is for those enterprises that have introduced a virus-scanning program)

(3) How often does your enterprise update the anti-virus program? Please circle the appropriate number.

1. Every day	2. More than once a week	3. More than once per month

1. Every day   2. More than once a week   3. More than once per month
4. More than once every three months 5. More than once every six months 6. More than once per year
7. Period longer than one year   8. No updates since introduction   9. No answer

(4) What countermeasures have been implemented in your enterprise to backup the
communications network? Please circle the appropriate number.

	Yes	No, but there are firm plans to do so	No, and there is no plan to do so
? Maintain a backup connection	1	2	3
? Installment of joint mobile and satellite communications network	1	2	3
? Distributed computer center	1	2	3
? Earthquake resistant computer center	1	2	3
? In-house power generator, UPS installation	1	2	3
? Dual CPU and communication control devices	1	2	3
? Subcontracted to fully equipped system backup specialist	1	2	3

Question 7 - Regarding the Year 2000 Problem

When will your enterprise complete it's Y2K Problem readiness? Please circle the appropriate number.
Additionally, for those enterprises with no threat from the Y2K Problem, please circle "6. preparations no
necessary."

1. Preparations complete   2. Will be complete in 1998   3. Will be complete in 1999
4. Will be complete after 2000   5. Not sure   6. No preparations necessary

Lastly, regarding your enterprise profile
1. What is your enterprise's capitalization (the amount invested) ? Please circle the
appropriate number.

1. Less than 10 million yen   2. 10 million to 19.9 million yen   3. 30 million to 49.9 million yen
4. 50 million to 99.9 million yen   5. 100 million t 499.9 million yen   6. 500 million to 999.9 million yen
7. 1 billion to 4.9 billion yen   8. 5 billion yen or more

2. How many employees (*1) are there at your enterprise ? Please circle the appropriate number.

1. 100 to 199 employees   2. 200 to 299 employees   3 . 300 to 499 employees
4. 500 to 999 employees   5. 1,000 to 1,999 employees   6. 2,000 to 2,999 employees
7. 3,000 to 4,999 employees   8. 5,000 employees or more

Note: Employee refers to the number of regular employees during the pay period of November 1, 1998, or the pay period
closest to this period. This applies to those employees who are referred to as temporary part-time, or day workers if
they have a contract longer than one month or they worked 18 days or more in either September or October 1998.

3. What are your approximate annual sales (*2)? Please enter your answer in units of one million yen.

(million-yen)

(*2) Note: Please enter annual sales for fiscal 1997 (April 1997 to March 1998), do not include non-business related
revenues. If data doesn't exist for this period, please use the accounting period that most closely approximates this
period.

4. How many establishments (*3) does your enterprise operate domestically? Please enter a number.
Additionally, the number of establishments includes the head establishment, thus, even if you are the

Single-unit enterprise, please enter 1.

(places)

(*3) Note: Please answer as of November 1, 1998

5. How many establishments (*4) does your enterprise operate internationally? Please enter a number. Additionally, this includes branch establishments, but if there are none, please enter "0".

(places)

(*4) Note: Please answer as of November 1, 1998

? This is the end of the questionnaire. We would appreciate it if you could take the time to return this questionnaire using the self-addressed, postage-paid envelope provided. You do not need a stamp. Thank you for your cooperation.

Communications Usage Trend Survey Questionnaire (Enterprises)

(Enterprises with 300 regular employees or more)

Confidential

Ministry of Posts and Telecommunications (1998)

Communications Usage Trend Survey Questionnaire
(Enterprises)

? This survey is an approved survey under the Statistical Reports Regulation Law, the results of which will be used for the creation of statistical information only. Please feel free to answer candidly.

In filling out this survey, please pay attention to the following points.

1. Please complete this survey as of November 1, 1998.
2. Please return completed surveys (or make inquiries) to:
   New Information Center, Inc.
   Ebisu IS building 1-13-6 Ebisu Shibuya-ku, Tokyo 150-0013
   Tel: 03(3473) 5231, Fax: 03(3473)5353
3. This survey is being conducted by the above survey company for the Ministry of Posts and Telecommunications.

(Place name/address sticker here)	Department	
	Person	
	Telephone	

Question 1 - Regarding Internal communications network

(1) Has your enterprise installed a LAN or Intranet? Please circle the appropriate number.
For the purpose of this survey, an Intranet and LAN are considered separate networks (i.e. LAN does not include Intranet).

	Yes, throughout the enterprise	Yes, in some establishment or department	No, but there are firm plans to do so	No, and there is no plan to do so
? LAN	1	2	3	4
? Intranet	1	2	3	4

If you circled number 3 above, please go to (5). If you circle 1 or 2, please continue from the next question.

(2) Can your enterprises network be accessed from outside through the use of a PDA (Personal Digital Assistants) ? Please circle the appropriate number for each type of network separately.

	Yes, access is possible	No, but there are firm plans to do so	No, and there is no plan to do so
? LAN	1	2	3
? Intranet	1	2	3

(3) How many users are there per terminal connected to your LAN or Intranet? Please circle the appropriate number.

| 1. One user per terminal | 2. Two users per terminal | 3. Three users per terminal |
| 4. Four users per terminal | 5. Five or more users per terminal | |

(4) What types of problems are recognized in connection with LAN or Intranet use in your enterprise? Please enter up to three numbers <u>in the order of importance</u>.

1. Security measures are difficult to establish
2. Increasing cost of training network maintenance personnel
3. Insufficient network maintenance personnel
4. Recovery from difficulties takes too long
5. Creation of information for public release is difficult
6. Takes time to connect to the server
7. Difficult to prevent leakage of sensitive internal information
8. Have not achieved good results from introducing the system
9. Other
10. No problems

First		Second		Third	

(5) For what purpose was a LAN or Intranet installed in your enterprise? Please enter up to 3 items in the order of importance.

1.	Implementation of internal information and data exchange
2.	Share applications within the enterprise
3.	Sharing computer peripherals (printers etc)
4.	Increase speed of information distribution
5.	Implementation of groupware and workflow systems
6.	Implementation of e-mail
7.	Implementation of documentary authorization system
8.	Implementation of finance/accounting system
9.	Implementation of television conference system via personal computer
10.	Simplify wiring system
11.	Downsizing
12.	Increase work speed
13.	Reduce cost of paper and personnel
14.	Other
15.	No particular problem

First		Second		Third	

(6) Does your enterprise use an Extranet? Please circle the appropriate number.

| 1. Yes | 2. No, but there are firm plans to do so | 3. No, and there is no plan to do so |

If you circle 1 or 2 above, please answer question (7).

(7) For what purpose does your enterprise use an Extranet? Please enter up to three numbers in the order of importance.

1.	Share customers information between related enterprises
2.	Implement workflow system with related enterprises
3.	Remote access connectivity
4.	Joint operations and joint planning with other enterprises
5.	Implement electronic commerce
6.	Implementation of electronic data interchange (EDI)
7.	Expand number of trading partners
8.	Other

First		Second		Third	

Question 2 - **Regarding online services and the Internet**

(1) Does your enterprise use online services or the Internet? Please circle the appropriate number.

	Yes, throughout the enterprise	Yes, in some establishment or department	No, but there are firm plans to do so	No, and there is no plan to do so
? Online services	1	2	3	4
? Internet	1	2	3	4

(The next question is only for those enterprises who use the Internet)

(2) What concerns have you experienced regarding Internet usage? Please enter up to 3 items in the order of degree of concern from highest to lowest.

1. Takes time and effort to research information
2. Uncertainty about intellectual property protection
3. Worry about virus infection
4. Worry about security
5. Uncertain about the reliability of authentication technology
6. Data transmission path is unknown
7. Uncertain about the reliability of electronic payment methods
8. Not sure when e-mail will arrive at its destination
9. Communication costs are high
10. Other
11. No particular concern

First		Second		Third	

Question 3 - **Regarding e-mail**

(1) Does your enterprise use e-mail (including e-mail via the Internet)? Please circle the appropriate number.

1. Yes, internally   2. Yes, internally and externally
3. No, but there are firm plans to do so   4. No,and there is no plan to do so

(If you circled 1 or 2 above, please answer the next question)

(2) What type of e-mail system is employed? Please circle all answers that apply.

1. In-house system (includes related enterprises)   2. External online service
3. External VAN center   4. Internet

Question 4 - **Regarding VAN services**

(1)Does your enterprise use a VAN service? Please circle the appropriate number.

1. Yes, enterprise-wide   2. Yes, some establishment or department use
3. No, but there are firm plans to do so   4. No, and there is no plan to do so

(If you circled 1 or 2 above, please answer the following question)

(2) How does your enterprise employ VAN services? Please circle all answers that apply.

```
1.   Private WATS (Wide And Telecommunication Service) network
2.   Facsimile transmission
3.   LAN to LAN access
4.   E-mail
5.   Access external database
6.   EDI
7.   Order Placement System
8.   Access overseas networks
9.   Network operation, administration, and maintenance
10.  Other
```

(Multiple answers are acceptable)

Question 5 - Regarding EDI (Electronic Data Interchange) (*) usage

(1) Does your enterprise use EDI (Electronic Data Interchange)? Please circle the appropriate number.

Note: EDI (Electronic Data Interchange) refers to a method of using computers to exchange communication and transaction data between different enterprises using a widely recognized standard convention.

1. Yes	2. No, but there are firm plans to do so	3. No, and there is no plan to do so

(If you circled 1 above, please go onto the next question. If you circle 2 or 3 above, please go to (3).)

(2) Does your enterprise use EDI employing the Internet? Please circle the appropriate number.

1. Used for all operations	2. Used in some operations	3. Not used

If you circled 1 or 2 above, what reason does your enterprise have for using an EDI that employs the Internet?

1. Overseas operations is easy	2. Cross-platform compatibility
3. Easy to operate	4. Low communication costs
5. Develop new customers, Expand business	
6. Increase the number of applications that use e-mail etc.	7. Other reason

(The next question is for all enterprises)

(3) What problems do you consider to exist in the diffusion of EDI? Please enter up to three numbers in the order of magnitude of the problem.

```
1.   Specialized knowledge is required to establish a system
2.   Communications protocol differs from industry to industry
3.   Documentation formats differ from industry to industry
4.   The exchangeable data types are limited
5.   Security is insufficient
6.   Facility investment burden is too great
7.   Running cost is high
8.   Unprepared for EDI implementation
9.   Electronic commerce law is incomplete
10.  Company communication system is insufficient
11.  Lack of information regarding EDI
12.  Other
13.  No particular problem
14.  Not sure
```

First		Second		Third	

Question 6 - Regarding communication network security measures

(7) What measures is your enterprise taking in regard to data security on your   communication network? Please circle all answers that apply.

1.	Password access control
2.	User verification via personal or department ID
3.	Line monitoring
4.	Encryption device
5.	Data encryption
6.	User verification via authorization technology
7.	Use a VPN
8.	Firewall
9.	Proxy server
10.	Security inspection service
11.	Other measures
12.	Not sure because it is subcontracted to another company
13.	Not taking any particular measures

(Mulitiple answers are acceptable)

(2) What type of anti-virus countermeasures is your enterprise taking? Please circle all answers that apply.

1.	Introduction of a client-side virus-scanning program
2.	Introduction of a server-side virus-scanning program
3.	Establishment of a virus wall for connecting with outside
4.	Other
5.	No countermeasures taken

(Multiple answers are acceptable)

(The next question is for those enterprises that have introduced a virus-scanning program)

(3) How often does your enterprise update the anti-virus program? Please circle the   appropriate number.

1. Every day   2. More than once a week   3. More than once per month
4. More than once every three months   5. More than once every six months 6. More than once per year
7. Period longer than one year   8. No updates since introduction   9. No answer

(4) What countermeasures have been implemented in your enterprise to backup the   communications network? Please circle the appropriate number.

	Yes	No, but there are firm plans to do so	No, and there is no plan to do so
? Maintain a backup connection	1	2	3
? Installment of joint mobile and satellite communications network	1	2	3
? Distributed computer center	1	2	3
? Earthquake resistant computer center	1	2	3
? In-house power generator, UPS installation	1	2	3
? Dual CPU and communication control devices	1	2	3
? Subcontracted to fully	1	2	3

equipped system backup specialist			

Question 7 - Regarding the Y2K Problem

When will your company complete it's Y2K Problem readiness? Please circle the appropriate number. Additionally, for those enterprises with no threat from the Y2K Problem, please circle "6. No preparations necessary."

1. Preparations complete	2. Will be complete in 1998	3. Will be complete in 1999
4. Will be complete after 2000	5. Not sure	6. No preparations necessary

Question 8 - Regarding communication network costs

How much did your enterprise spend on communication network related costs for fiscal year 1998 (April 1997 to March 1998). (If data doesn't exist for this period, please use the accounting period that most closely approximates this period.)

Additionally, if there are problems calculating the costs due to joint usage across departments, you may leave an item blank. If there are no related costs for an item, please enter "0".

				Billion		Million				
1	Depreciation (*1)									10K yen
2	Rental/Lease fees (*2)									10K yen
3	Maintenance fees									10K yen
4	Type 1 carrier line charges (*3)									10K yen
5	Type 2 carrier service charges (*4)									10K yen
6	Payroll (*5)									10K yen
7	External personnel costs (*6)									10K yen
8	Software development, purchase, and usage fees (*7)									10K yen
9	Other costs (*8)									10K yen
Total										10K yen

Note:
(*1) "Depreciation" refers to the depreciation taken in the prior fiscal year on equipment that was purchased, including communication network computers and terminals, switching devices (including PBX), multiplex devices, and LAN communication devices.

(*2) "Rental/Lease" refers to the annual cost for equipment rented or leased, including communication network computers and terminals, switching devices (including PBX), multiplex devices, and LAN communication devices.

(*3) "Type 1 carriers" refers to telecommunications companies such as NTT, KDD, DDI, Nihon Telecom, and Teleway Japan, which provide telecommunication lines to your enterprise. Telecommunication line refers to private lines, DDX/DDX-TP, packet switching and other digital-switched networks, ISDN, VENUS etc.

(*4) "Type 2 carrier" refers to service providers such as VAN service providers that lease telecommunication lines from Type 1 carriers. Additionally, info-communications services refers to services such as VAN services, Online/Realtime processing services, Online database services.

(*5) "Payroll" refers to the total amount of remuneration paid by the enterprise for telecommunications department (info-communications planning, and management department) personal. This includes pre- tax salary, bonuses, expenses, and insurance coverage. However, external personnel are included in their own category and so are not included here.

(*6) "External personnel costs" refers to costs of hiring external personnell such as system engineers, programmers, keypunch operators, telephone operators.

(*7) "Software development, purchase, and usage fees" refers to costs related to system design and program development or purchase. Software use fees are included under "Rental/Lease charges."

(*8) "Other" refers to network or system related costs for consumable items and regular maintenance and repair costs associated with system management.

Lastly, regarding your enterprise profile

1. What is your enterprise's capitalization (the amount invested)? Please circle the appropriate number.

1. Less than 10 million yen	2. 10 million to 29.9 million yen	3. 30 million to 49.9 million yen
4. 50 million to 99.9 million yen	5. 100 million t 499.9 million yen	6. 500 million to 999.9 billion yen
7. 1 billion to 4.9 billion yen	8. 5 billion yen or more	

2. How many employees (*1) are there at your enterprise ? Please circle the appropriate   number.

1. 100 to 199 employees	2. 200 to 299 employees	3. 300 to 499 employees
4. 500 to 999 employees	5. 1,000 to 1,999 employees	6. 2,000 to 2,999 employees
7. 3,000 to 4,999 employees	8. 5,000 employees or more	

Note: Employee refers to the number of regular employees during the pay period of November 1, 1998, or the pay period closest to this period. This applies to those employees who are referred to as temporary, part-time, or day workers if they have a contract longer than one month or they worked 18 days or more in either September or October 1998.

3. What are your approximate annual sales (*2)? Please enter your answer in units of one   million yen.

(million-yen)

(*2) Note: Please enter annual sales for fiscal 1997 (April 1997 to March 1998), do not include non-business related revenues. If data doesn't exist for this period, please use the accounting period that most closely approximates this period.

4. How many establishments (*3) does your establishment operate domestically? Please enter a number. Additionally, the number of establishments includes the head establishment, thus, even if you are the single-unit enterprises, please enter 1.

(places)

(*3) Note: Please answer as of November 1, 1998

5. How many establishments (*4) does your enterprise operate internationally? Please enter a number. Additionally, this includes branch establishment, but if there are none, please enter "0".

(places)

(*4) Note: Please answer as of November 1, 1998

? This is the end of the questionnaire. We would appreciate it if you could take the time to return this questionnaire using the self-addressed, postage-paid envelope provided. You do not need a stamp. Thank you for your cooperation.

The 2001 Establishment and Enterprise Census
The Pilot Survey Questionnaire

(Survey Item 13: Actual status of electronic commerce)

(Questions)

1. Are you taking electronic commerce? (Please encircle an appropriate answer.)

    a. We are taking electronic commerce on the Internet
        In this case, please write your home-page address if you have one.
    b. We are taking electronic commerce with a computer-mediated network other than the Internet
    c. We are not taking electronic commerce

When you choose the answer a. or b. in the above question, please answer the following question, too.

2. Whom are you practicing electronic commerce with?

And what stage are you taking electronic commerce in?

  (Please encircle an appropriate answer.)

    a. We are taking electronic commerce with other establishments or enterprises.

        In this case, please encircle the appropriate one(s) about what stage you are taking electronic commerce in.

        a) Receiving orders
        b) Ordering
        c) Delivery or its arrangement
        d) After sales services, and others

    b. We are doing electronic commerce with consumers.

        In this case, please encircle the appropriate one(s) about what stage you are taking electronic commerce in.

        a) Receiving orders
        b) Delivery or its arrangement
        c) After sales services, and others