

# **THE 2004 INFORMATION AND COMMUNICATION TECHNOLOGY SURVEY**

## **(ESTABLISHMENT)**

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Due attention is given to use the knowledge and technology as the country development base in order to be competed in learning and the knowledge base society. The National Statistical Office (NSO), as an authorized government agency, therefore, decides to conduct the first survey of Information and Communication Technology Survey in 2004. The data collection was performed in 2 stages; the listing stage and the enumeration stage.

This publication presented are the results of the enumeration stage, concerning the information of sample establishments with at least one person engaged located **in municipal areas in the Whole Kingdom**. Those engaged in business trade and services, manufacturing, construction and other land transport and activities of travel agencies. All information collected refers to the operation period of establishment during July 1, 2003 to June 30, 2004. A Stratified Systematic Sampling was adopted for the survey. Provinces were constituted strata while type of economic activities and group of establishment were constituted sub-stratum. The sampling units were establishments. The total sample establishments selected were 78,182 from 833,762 establishments. The major findings are as follows;

### **1. General Information of Establishment**

#### **1) Number and Size of Establishment**

The results of the 2004 Information and Communication Technology Survey (Table A), show that there were 829,867 establishments, with 1 person engaged or more **located in municipal areas in the Whole Kingdom**. Out of these, 800,425 establishments or 96.5 percent were small scale establishments with 1 - 15 persons. Followed by those, with 16 - 25 persons were about 12,096 establishments or 1.5 percent. For the establishments with 51 - 200 persons and 31 - 50 persons were the same proportions of about 0.8 and 0.7 percent respectively. While the establishments with 26 - 30 persons and the large scale establishments (more than 200 persons), were very small proportions less than 0.5 percent of the totals.

#### **2) Form of Legal Organization**

For the form of legal organization, it was found that most of establishments (about 83.4 percent) were individual proprietor. Followed by those, which were in the form of company limited, public company limited and juristic partnership were about 11.3 and 4.5 percent respectively. The rest, of about 0.8 percent was government, cooperatives and others.

**Table A Number and Percentage of Establishments by Characteristics of Establishment**

Characteristics of Establishment	Number	%
<b>Total</b>	<b>829,867</b>	<b>100.0</b>
<b>Size of Establishment</b>		
1 - 15 persons	800,425	96.5
16 - 25 persons	12,096	1.5
26 - 30 persons	2,793	0.3
31 - 50 persons	5,879	0.7
51 - 200 persons	6,556	0.8
More than 200 persons	2,119	0.2
<b>Form of Legal Organization</b>		
Individual proprietor	692,373	83.4
Juristic partnership	36,956	4.5
Company limited, Public company limited	93,911	11.3
Government, State enterprises, Cooperative and Others	6,626	0.8
<b>Form of Economic Organization</b>		
Single unit	766,546	92.4
Head office	12,870	1.5
Branch or subsidiary	50,450	6.1
<b>Register Capital</b>		
No	735,970	88.7
Yes	93,896	11.3
<i>Less than 10 Million Baht</i>	<i>80,870</i>	<i>86.1</i>
<i>10 - 99 Million Baht</i>	<i>10,997</i>	<i>11.7</i>
<i>100 Million Baht or more</i>	<i>2,028</i>	<i>2.2</i>
<b>Foreign Investment or Share Holding</b>		
No	814,736	98.2
Yes	15,130	1.8
<i>10 percent or lower</i>	<i>3,577</i>	<i>23.6</i>
<i>More than 10 percent</i>	<i>11,554</i>	<i>76.4</i>

### **3) Form of Economic Organization**

Looking at the form of economic organization, it shows that most of establishments located in municipal areas in the Whole Kingdom were single unit, with high proportion of about 92.4 percent. Followed by those, which were in form of branch or subsidiary and head office, of about 6.1 and 1.5 percent respectively.

### **4) Register Capital**

Data concerning registered capital of table A shows that there were totally 93,896 establishments or 11.3 percent of the totals had the registered capital. Most of them (about 86.1 percent) had less than 10 million baht of register capital. Followed by those, which had 10 - 99 million baht of register capital, was about 11.7 percent. The rest, of about 2.2 percent, had 100 million baht or more.

### **5) Foreign Investment or Share Holding**

Considering the foreign investment or share holding the result shows that most of establishments (about 98.2 percent) had no foreign investment or share holding, while the rest of about 1.8 percent did. Out of these, about 76.4 percent was over ten percent share holding and 23.6 percent was ten percent or lower of the share holding.

## **2. Use of Information and Communication Technology**

### **1) Computer**

Looking at the use of information and communication technology of 829,867 establishments located in municipal areas in the Whole Kingdom (Table B), it shows that most of them (about 171,367 establishments or 20.6 percent) used of computers. There were totally 699,197 units of computer facilitated business process or 4 units per establishment and the computers connected to internet were about 327,174 units. For the number of persons using computers in their normal work routines (at least once a week), there were 741,327 or about 4 persons per establishment.

In term of size of establishment, it was found that the large scale establishments, (more than 200 persons) had the highest average of 78 computers per establishment. Followed by those with 51 - 200 persons had about 17 computers per establishment. The other sizes had less than 10 units per establishment. For the computer connected to the internet, it appeared that the large scale establishments, connected to the internet by 80,831 units or about 49.3 percent and they had the average highest number of persons using computer about 107 persons per establishment. While the small scale establishments (1 - 15 persons) had the computers of about 329,191 units and connected to the internet by 152,194 units or about 46.3 percent and they had the lowest average number of 2 persons using computer per establishment.

**Table B Number and Percentage of Establishments with Use of the Computer, Number of Computers and Number of Persons Using Computer by Size of Establishment and Economic Activity**

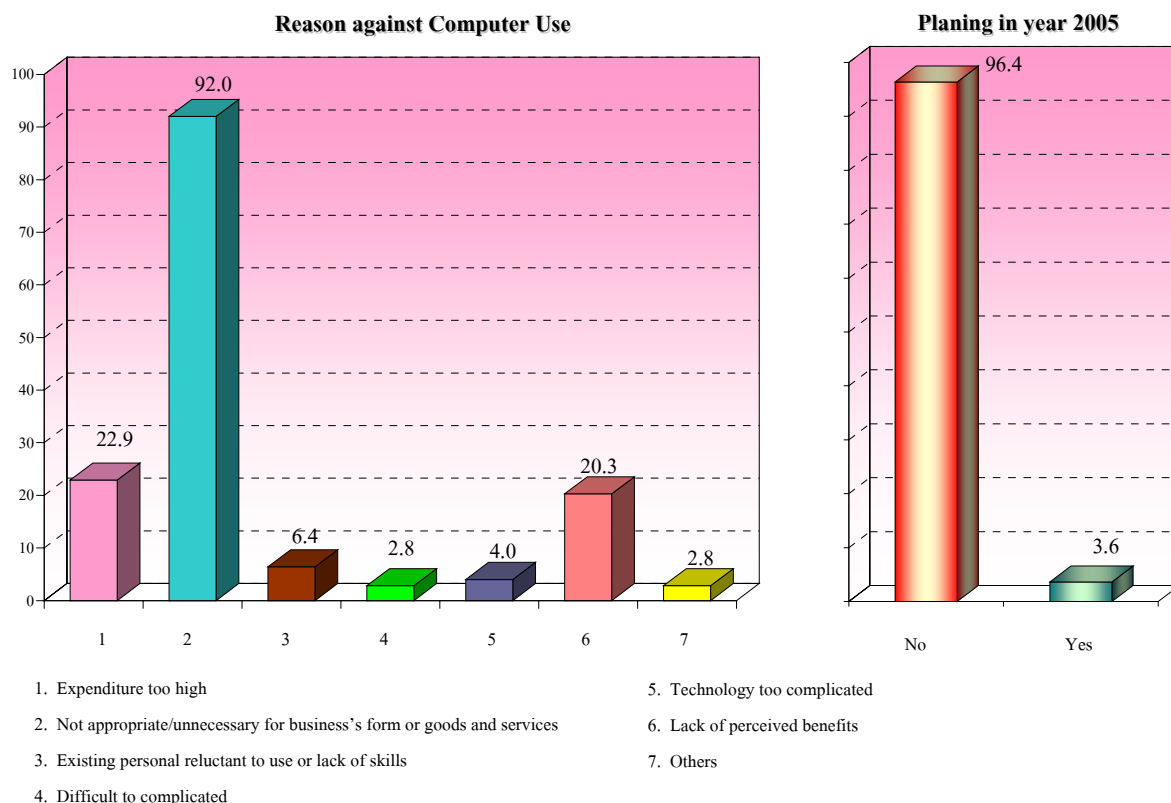
Size of Establishment / Economic Activity	Number of Establishments Use of Computer	Number of Computers (Units)			Number of Persons Using Computer (Persons)	
		Total	Per establish- ment	Connected to the internet	Total	Per establishment
<b>Total</b>	<b>171,367</b>	<b>699,197</b>	<b>4.1</b>	<b>327,174</b>	<b>741,327</b>	<b>4.3</b>
<b>Size of Establishment</b>						
1 - 15 persons	146,223	329,191	2.3	152,294	306,139	2.1
16 - 25 persons	9,371	44,595	4.8	18,794	46,403	5.0
26 - 30 persons	2,339	14,878	6.4	7,023	15,344	6.6
31 - 50 persons	5,083	43,990	8.7	21,306	44,314	8.7
51 - 200 persons	6,246	102,800	16.5	46,925	104,294	16.7
More than 200 persons	2,105	163,742	77.8	80,831	224,830	106.8
<b>Economic Activity</b>						
Business trade and services	141,845	481,105	3.4	232,038	470,552	3.3
Manufacturing	21,511	179,142	8.3	74,599	231,785	10.8
Construction	4,298	20,941	4.9	10,018	21,757	5.1
Other land transport and activities of travel agencies	3,712	18,008	4.8	10,518	17,231	4.6

Considering by economic activity, it was found that the establishments engaged in *manufacturing activity* had the highest average of 8 computers per establishment. The followings were in *construction* and *other land transport and activities of travel agencies activities* were about 5 computers per establishment. Establishments engaged in *business trade and services activity* had the lowest average of 3 computers per establishment. For the computers connected to the internet, it was found that establishments engaged in *business trade and services activity* had the highest number of about 232,038 units. Followed by those engaged in *manufacturing activity* about 74,599 units.

**1.1 Reasons against Computer Use and Planing in year 2005**

For the reasons against computer use of the establishments in municipal areas in the Whole Kingdom, it was found that about 92.0 percent of establishments reported being not appropriate / unnecessary for business's form or goods and services. The followings were too high expenditure and lack of perceived benefits of about 22.9 and 20.3 percent respectively. For the establishments reported existing personal reluctant to use or lack of skills was about 6.4 percent.

**Figure G Percentage of Establishments against Computer Use by Reason and Planing in year 2005**



Note : More than 1 reason against computer can be done by an establishment.

For the plan to use the computer of establishment in year 2005, figure G, shows that there was very small proportion establishment, only 3.6 percent have planed.

**2) Software Specialist**

Table C, shows that there were 31,092 software specialists. Most of them (about 58.0 percent) were Developed and Maintenance Programmer. Followed by those, which was Computer Systems Designers and Analysts of about 28.7 percent. The rest, of about 13.3 percent was Web Programmer and Web Master

In term of size of establishments, it was found that there was 13,308 software specialists engaged in the small scale establishments (1 - 15 persons). Establishments with more than 200 persons and 51 - 200 persons had employed software specialists about 6,797 and 5,281 persons respectively. While the establishments with 26 - 30 persons had employed about 894 software specialists.

Considering by economic activity, it was found that establishments engaged in *business trade and service activity* had the highest proportion of about 22,952 persons or 73.8 percent of total number of software specialists. It is noticed that establishments engaged in *other land transport and activities of travel agencies activity* had the lowest proportion of about 545 persons.

**Table C Number of Software Specialist by Type, Size of Establishment and Economic Activity**

Unit : Persons

Size of Establishment / Economic activity	Total	Developed and Maintenance Programmer	Computer Systems Designers and Analysts	Web Programmer and Web master
<b>Total</b>	<b>31,092</b>	<b>18,042</b>	<b>8,918</b>	<b>4,131</b>
<b>Size of Establishment</b>				
1 - 15 persons	13,308	8,314	3,677	1,317
16 - 25 persons	2,307	1,361	683	263
26 - 30 persons	894	606	200	88
31 - 50 persons	2,505	1,417	625	463
51 - 200 persons	5,281	2,793	1,761	728
More than 200 persons	6,797	3,551	1,974	1,273
<b>Economic Activity</b>				
Business trade and services	22,952	13,562	6,304	3,087
Manufacturing	6,638	3,632	2,149	856
Construction	957	516	367	74
Other land transport and activities of travel agencies	545	333	98	115

### 3) Internet

Table D shows that there was 43.8 percent of establishments located in municipal areas in the Whole Kingdom used of the internet and the number of persons using internet in their normal work routines (at least once a week) was about 314,447 persons or about 4 staffs per establishment.

The majority of internet using was found in the large scale establishments (more than 200 persons), about 90.7 percent and the average number of persons using internet about 43 persons per establishment. While the small scale establishments (1 - 15 persons) had the lowest proportion of use of the internet, about 39.5 percent and they had the lowest number of persons using internet of about 2 persons per establishment.

**Table D Number and Percentage of Establishments with Using Internet and Number of Persons Using Internet by Size of Establishment and Economic Activity**

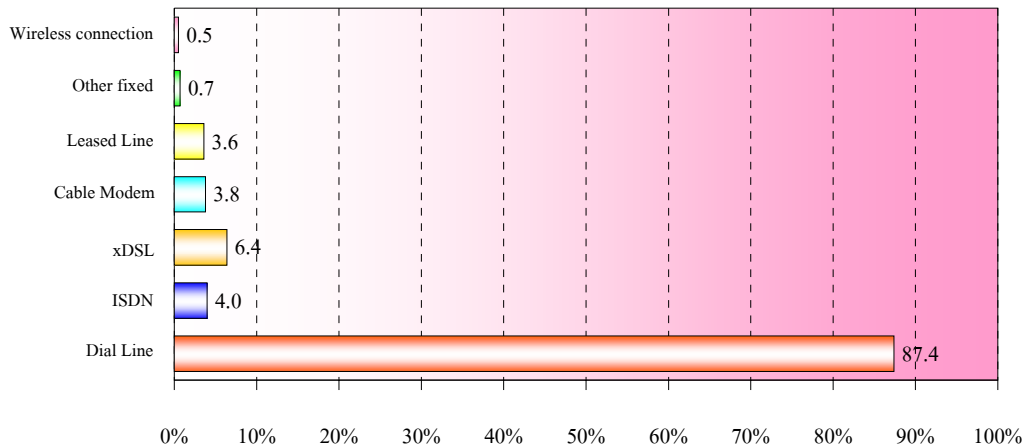
Size of Establishment / Economic Activity	Use of the Internet						Number of Persons Using Internet (Persons)	
	Total		No		Yes		Total	Per establish-
	Number	%	Number	%	Number	%		
<b>Total</b>	<b>171,367</b>	<b>100.0</b>	96,343	56.2	75,023	43.8	314,447	4.2
<b>Size of establishment</b>								
1 - 15 persons	<b>146,223</b>	<b>100.0</b>	88,393	60.5	57,829	39.5	125,669	2.2
16 - 25 persons	<b>9,371</b>	<b>100.0</b>	3,855	41.1	5,516	58.9	22,878	4.1
26 - 30 persons	<b>2,339</b>	<b>100.0</b>	871	37.2	1,469	62.8	8,184	5.6
31 - 50 persons	<b>5,083</b>	<b>100.0</b>	1,588	31.2	3,495	68.8	23,193	6.6
51 - 200 persons	<b>6,246</b>	<b>100.0</b>	1,440	23.1	4,805	76.9	51,684	10.8
More than 200 persons	<b>2,105</b>	<b>100.0</b>	196	9.3	1,909	90.7	82,836	43.4
<b>Economic activity</b>								
Business trade and services	<b>141,845</b>	<b>100.0</b>	83,000	58.5	58,845	41.5	217,965	3.7
Manufacturing	<b>21,511</b>	<b>100.0</b>	10,468	48.7	11,042	51.3	74,625	6.8
Construction	<b>4,298</b>	<b>100.0</b>	1,744	40.6	2,554	59.4	11,097	4.3
Other land transport and activities of travel agencies	<b>3,712</b>	<b>100.0</b>	1,131	30.5	2,582	69.5	10,758	4.2

Considering by economic activity, it was found that establishments engaged in *other land transport and activities of travel agencies activity* had the highest proportion of used of the internet (about 69.5 percent). The followings engaged in *construction* and *manufacturing activities*, which were about 59.4 and 51.3 percent respectively. Establishments engaged in *business trade and services activity* were about 41.5 percent. The highest average number of persons using internet was found in *manufacturing activity* of about 7 persons per establishment. The others had about 4 persons per establishment.

### **3.1 Type of External Connection to the Internet**

For the establishments in municipal areas in the Whole Kingdom, with used of internet (about 75,023 establishments or about 43.8 percent), it was found that most establishments (about 87.4 percent) connected to the internet by dial line. The followings were xDSL and ISDN about 6.4 and 4.0 percent respectively. For the connection to the internet by cable modem and Leased Line were about 3.8 and 3.6 percent respectively. While the connection to the internet by other fixed connection i.e. frame relay or VPN and wireless connection i.e. mobile phones, satellite etc. were very small proportion of about 0.7 and 0.5 percent respectively.

**Figure H Percentage of Establishments with Using Internet by Type of External Connection to the Internet**

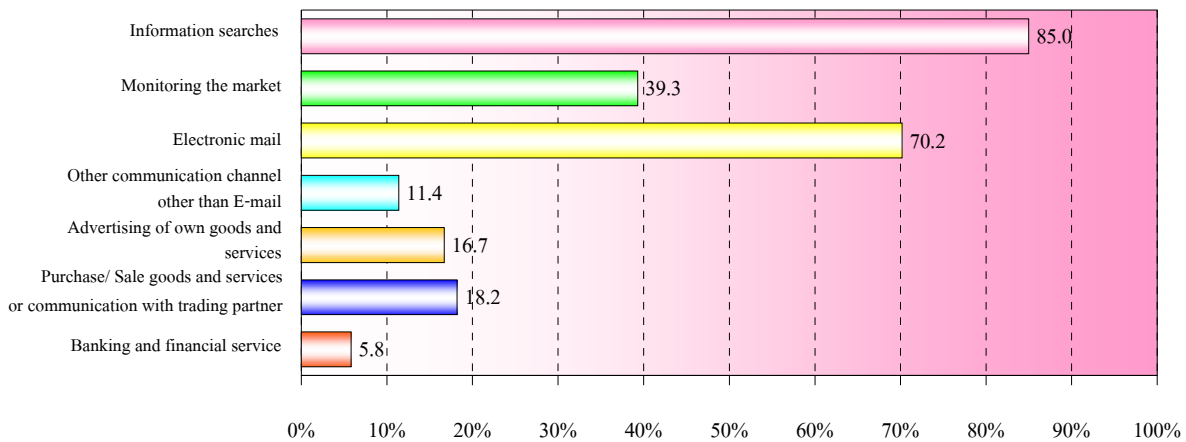


Note : More than 1 characteristic can be done by an establishment.

### 3.2 Purposes of Using the Internet

Considering the purposes of using the internet of establishment, Figure I shows that most of establishments (about 85.0 percent) accessed to the internet for information searches. Followed by those accessed to the internet for electronic mail, monitoring the market and purchase / sale goods and services or communication with trading partner were about 70.2, 39.3 and 18.2 percent respectively. For the advertising of own goods and services and other communication channel other than E-mail i.e. ICQ, MSN, Web broad etc. were about 16.7 and 11.4 percent respectively. The other purposes, each, had less than 10.0 percent.

**Figure I Percentage of Establishments with Using Internet by Purposes of Using the Internet**



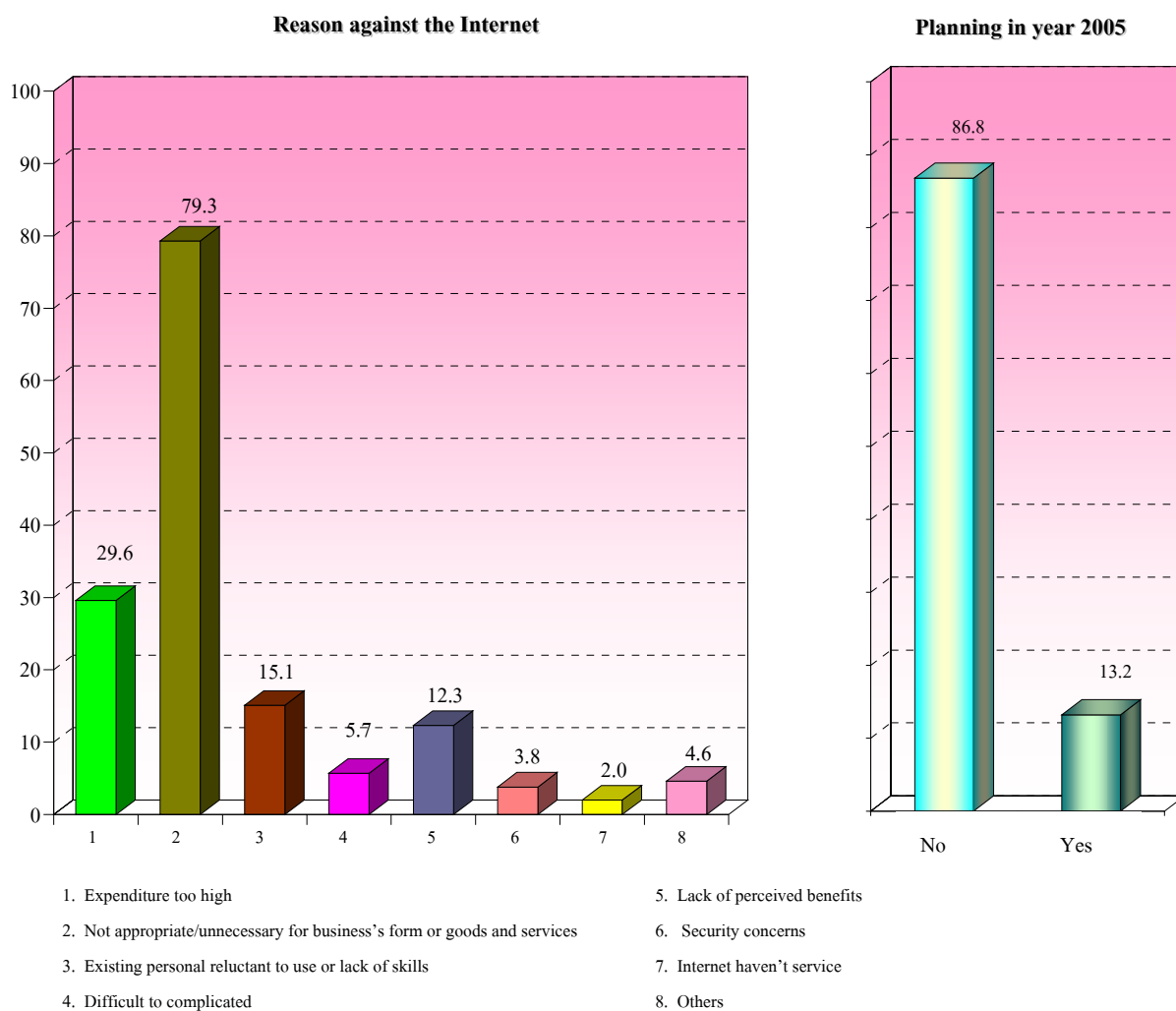
Note : More than 1 characteristic can be done by an establishment.

### 3.3 Reasons against the Internet and Planing in year 2005

The establishments located in municipal areas in the Whole Kingdom, which didn't use of the internet (about 96,343 establishments) reported the reason against Internet that it is not appropriate / unnecessary for business's form or goods and services about 79.3 percent. The followings were too high expenditure and existing personal reluctant to use or lack skills of about 29.6 and 15.1 percent respectively. About 12.3 percent of establishments reported of lack perceived benefits.

For the plan to use of the internet of establishment in year 2005 there was very small proportion establishment of about 13.2 percent that have planned.

**Table J Percentage of Establishments against the Internet by Reason and Planning in year 2005**



Note : More than 1 reason against the Internet can be done by an establishment.

#### 4) Website presence

For the website usage, there were 3.3 percent of the establishments in municipal areas in the Whole Kingdom. Out of these, about 81.6 percent, had their own website and about 19.8 percent used other web portals.

In term of size of establishment, it appeared that the large scale establishments (more than 200 persons) had the highest proportion about 70.6 percent of use of website. Out of these, about 85.4 percent, had their own website and 16.4 percent used other web portals. While the establishments with 1 - 15 persons had the lowest proportion of about 2.1 percent.

**Table E Number and Percentage of Establishments with Use of Website by Size of Establishment and Economic Activity**

Size of Establishment / Economic Activity	Number of Establish- ments Reported	Use of Website <sup>1/</sup>						No	
		Total		Own Website		Web portal			
		Number	%	Number	%	Number	%	Number	%
<b>Total</b>	<b>731,984</b>	<b>23,972</b>	<b>3.3</b>	<b>19,550</b>	<b>81.6</b>	<b>4,738</b>	<b>19.8</b>	<b>708,012</b>	<b>96.7</b>
<b>Size of Establishment</b>									
1 - 15 persons	710,529	15,103	2.1	12,056	79.8	3,227	21.4	695,426	97.9
16 - 25 persons	8,225	2,424	29.5	2,054	84.7	402	16.6	5,801	70.5
26 - 30 persons	1,918	652	34.0	573	87.9	86	13.2	1,266	66.0
31 - 50 persons	4,279	1,706	39.9	1,407	82.5	312	18.3	2,573	60.1
51 - 200 persons	5,112	2,731	53.4	2,301	84.3	490	17.9	2,381	46.6
More than 200 persons	1,921	1,356	70.6	1,158	85.4	222	16.4	565	29.4
<b>Economic Activity</b>									
Business trade and services	605,267	17,823	3.0	14,508	81.4	3,562	20.0	587,444	97.0
Manufacturing	104,127	4,260	4.1	3,568	83.8	746	17.5	99,867	95.9
Construction	6,929	869	12.5	647	74.4	223	25.7	6,060	87.5
Other land transport and activities of travel agencies	15,660	1,019	6.6	826	81.0	208	20.4	14,641	93.4

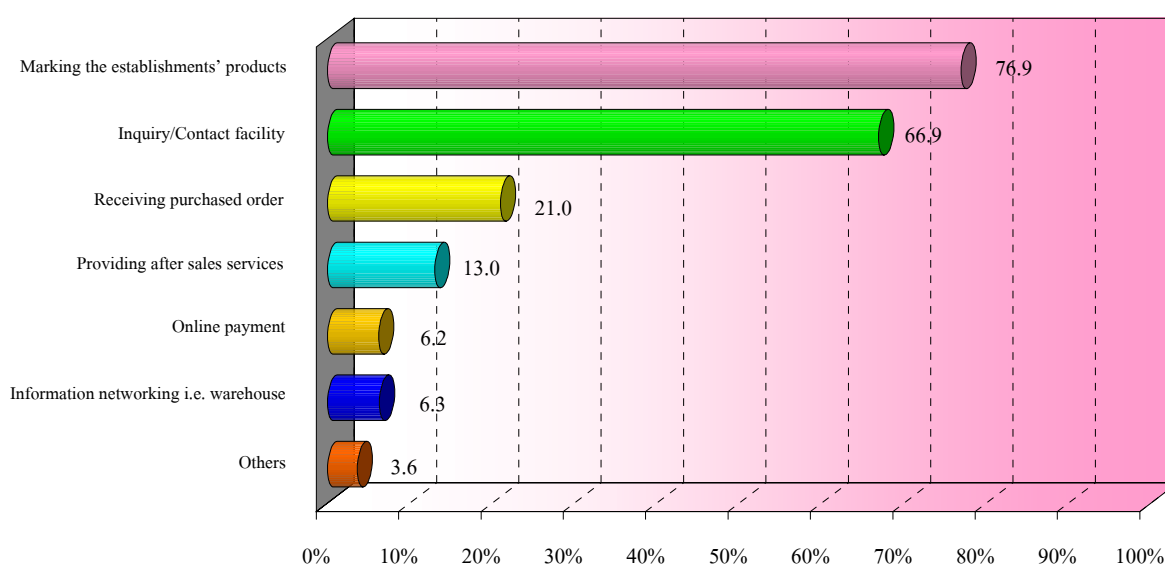
<sup>1/</sup> More than 1 characteristic can be done by an establishment.

Considering by economic activity, it was found that establishments engaged in *construction activity* had the highest proportion (about 12.5 percent) of used of website. Followed by those engaged in *other land transport and activities of travel agencies activity*, which was about 6.6 percent. The establishments engaged in *manufacturing* and *business trade and services activities* were very small proportions of used of website about 4.1 and 3.0 percent respectively.

#### 4.1 Purposes of Using Website

Considering the purposes of using website of establishment, it was found that most of them (about 76.9 percent) used of website for marketing the establishments’ products. The following was inquiry and contact facility of about 66.9 percent. While those used of website for receiving purchased order about 21.0 percent.

**Figure K Percentage of Establishments Use of Website by Purpose**



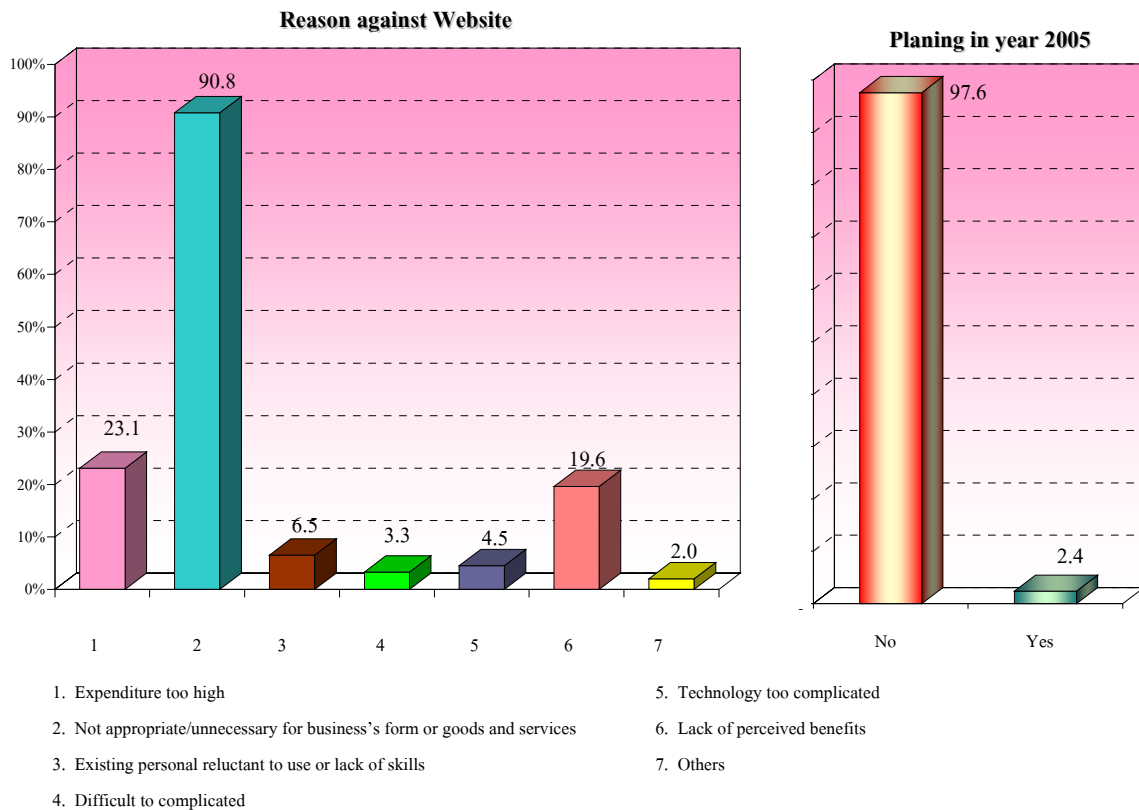
Note : More than 1 characteristic can be done by an establishment.

#### 4.2 Reasons against Web site and Planing in year 2005

The establishments located in municipal areas in the Whole Kingdom, which didn't use of web site, about 708,012 establishments, reported that it is not appropriate / unnecessary for business's form or goods and service with the high proportion of about 90.8 percent. The followings were too high expenditure and lack of perceived benefits of about 23.1 and 19.6 percent respectively.

Looked at the plan to use of web site of establishments in year 2005, it was found that there was very small proportion of about 2.4 percent.

**Figure L Percentage of Establishment against Website by Reasons and Planing in year 2005**



Note : More than 1 reason against Web site can be done by an establishment.

**5) Purchases via Internet and Payment via Internet**

Table F shows that establishments located in municipal areas in the Whole Kingdom was very small proportion of purchasing via internet about 1.3 percent. Out of these, the payment via internet was about 24.3 percent.

In term of size of establishment, it was found that the large scale establishments (more than 200 persons) had the highest proportion of purchasing via internet about 20.2 percent. Followed by those with 51 - 200 persons was about 13.2 percent. For the payment via internet, it was found that establishments with 31 - 50 persons had the highest proportion about 31.3 of the purchasing via internet.

Considering by economic activity, it was found that establishments engaged in *construction activity* had the highest proportion of purchases via internet of about 2.2 percent. Followed by those engaged in *other land transport and activities of agencies activity* which was about 1.6 percent. The establishments engaged in *business trade and services* and *manufacturing activities* were not much different of about 1.3 and 1.0 percent respectively. For the payment via internet, it was found that establishments engaged in *other land transport and activities of travel agencies activity* had higher proportion than others of about 34.4 percent.

**Table F Percentage of Establishments with Purchase via Internet and Payment via Internet by Size of Establishment and Economic Activity**

Size of Establishment / Economic Activity	Number of Establishments Reported	No Purchases	Purchases via Internet		
			Total	Payment via Internet	No Payment via Internet
<b>Total</b>	<b>730,937</b>	<b>98.7</b>	<b>1.3</b>	<b>24.3</b>	<b>75.7</b>
<b>Size of Establishment</b>					
1 - 15 persons	709,484	99.1	0.9	24.4	75.6
16 - 25 persons	8,227	90.9	9.1	17.6	82.4
26 - 30 persons	1,918	89.2	10.8	23.2	76.8
31 - 50 persons	4,280	87.9	12.1	31.3	68.7
51 - 200 persons	5,109	86.8	13.2	22.5	77.5
More than 200 persons	1,920	79.8	20.2	29.9	70.1
<b>Economic Activity</b>					
Business trade and services	604,218	98.7	1.3	24.7	75.3
Manufacturing	104,128	99.0	1.0	21.5	78.5
Construction	6,929	97.8	2.2	10.0	90.0
Other land transport and activities of travel agencies	15,662	98.4	1.6	34.4	65.6

**6) Sales via Internet and Receivable via Internet**

Table G shows that establishments located in municipal areas in the Whole Kingdom was very small proportion of sales via internet, about 0.8 percent. The receivable via internet had also small proportion was about 16.0 percent.

In term of size of establishments, it appeared that the large scale establishments (more than 200 persons) had the highest proportion of sales via internet of about 20.4 percent. Followed by those, with 51 - 200 persons which was about 14.3 percent. The small scale establishments had low proportion of about 0.6 percent. For the receivable via internet, it was found that large scale establishments (more than 200 persons) had the highest proportion of receivable via internet of about 23.5 percent of sales via internet. Followed by those with 31 - 50 persons was about 20.7 percent.

Considering by economic activity, it was found that establishments engaged in *other land transport and activities of travel agencies activity* had the highest proportion of sales via internet, which was about 2.8 percent. Followed by those engaged in *manufacturing* and *business trade and service activities* were about 1.2 and 0.7 percent respectively. While the *construction activity* had small proportion of about 0.4 percent. For the receivable via internet was found that in establishments engaged in *other land transport and activities of travel agencies activity* had the highest proportion of receivable via internet about 21.3 percent. The lowest proportion of receivable via internet was found in *manufacturing activity* of about 12.1 percent.

**Table G Percentage of Establishments with Sale via Internet and Receivable via Internet by Size of Establishment and Economic Activity**

Size of Establishment / Economic Activity	Number of Establishments	No Sales	Sales via Internet		
			Total	Receivable via Internet	No Receivable via Internet
<b>Total</b>	<b>727,922</b>	<b>99.2</b>	<b>0.8</b>	<b>16.0</b>	<b>84.0</b>
<b>Size of Establishment</b>					
1 - 15 persons	706,550	99.4	0.6	14.8	85.2
16 - 25 persons	8,180	93.6	6.4	14.2	85.8
26 - 30 persons	1,912	92.2	7.8	18.4	81.6
31 - 50 persons	4,265	90.9	9.1	20.7	79.3
51 - 200 persons	5,099	85.7	14.3	16.2	83.8
More than 200 persons	1,915	79.6	20.4	23.5	76.5
<b>Economic activity</b>					
Business trade and services	601,722	99.3	0.7	16.5	83.5
Manufacturing	103,750	98.8	1.2	12.1	87.9
Construction	6,865	99.6	0.4	18.4	81.6
Other land transport and activities of travel agencies	15,584	97.2	2.8	21.3	78.7

### 7) Use of EDI or Other Computer Mediated Networks

Table H illustrates the use of EDI other computer Mediated Networks of the establishments located in municipal areas in the Whole Kingdom. There was very small proportion about 0.3 percent and the rest, of about 99.7 percent didn't. Out of these, about 1.1 percent have planed to use of EDI or computer mediated networks in year 2005.

In term of size of establishment, it was found that the large scale establishments (more than 200 persons) had the highest proportion of used of EDI about 16.5 percent. Followed by those with 51 - 200 persons was about 4.5 percent. The establishments with 31 - 50 persons and 26 - 30 persons were close proportions about 2.9 and 2.4 percent respectively. The other sizes had small proportion less than 2.0 percent. It is noticeable that the large scale establishments have planed to use of EDI in the year 2005 with higher proportion than others of about 12.8 percent.

Considering by economic activity, it was found that the establishments engaged in *other land transport and activities of travel agencies* had higher proportion of used of EDI than the others of about 1.3 percent. The followings engaged in *manufacturing* and *construction activities*, which were the same proportions of about 0.5 percent. The *business trade and services activity* was small proportion of about 0.3 percent. It is noted that *construction activity* have planed to use of EDI in the year 2005 with the higher proportion than others of about 3.3 percent.

**Table H Percentage of Establishments with Use of EDI or Other Computer Mediated Networks by Size Of Establishment and Economic Activity**

Size of Establishment / Economic Activity	Number of Establishments		Use of EDI or Other Computer Mediated Networks							
			Yes		No					
					Total		Plan to use EDI in 2005		No Plan	
Number	%	Number	%	Number	%	Number	%	Number	%	
<b>Total</b>	<b>829,867</b>	<b>100.0</b>	2,726	0.3	827,141	99.7	9,233	1.1	817,908	98.9
<b>Size of Establishment</b>										
1 - 15 persons	<b>800,425</b>	<b>100.0</b>	1,616	0.2	798,808	99.8	7,554	0.9	791,254	99.1
16 - 25 persons	<b>12,096</b>	<b>100.0</b>	230	1.9	11,865	98.1	525	4.4	11,340	95.6
26 - 30 persons	<b>2,793</b>	<b>100.0</b>	66	2.4	2,727	97.6	144	5.3	2,583	94.7
31 - 50 persons	<b>5,879</b>	<b>100.0</b>	169	2.9	5,710	97.1	313	5.5	5,398	94.5
51 - 200 persons	<b>6,556</b>	<b>100.0</b>	294	4.5	6,262	95.5	471	7.5	5,791	92.5
More than 200 persons	<b>2,119</b>	<b>100.0</b>	350	16.5	1,769	83.5	226	12.8	1,543	87.2
<b>Economic Activity</b>										
Business trade and services	<b>689,548</b>	<b>100.0</b>	1,917	0.3	687,631	99.7	7,531	1.1	680,100	98.9
Manufacturing	<b>114,813</b>	<b>100.0</b>	550	0.5	114,262	99.5	1,185	1.0	113,077	99.0
Construction	<b>8,702</b>	<b>100.0</b>	46	0.5	8,656	99.5	286	3.3	8,371	96.7
Other land transport and activities of travel agencies	<b>16,804</b>	<b>100.0</b>	213	1.3	16,590	98.7	231	1.4	16,359	98.6

### 8) Barriers on the Use of ICT

Considering the barriers on the used of ICT which comprises of 3 issues i.e. barriers on the use of ICT in general, of internet and the internet sales. The results of survey are as follows;

**Barriers on the use of ICT in general :** the establishments reported that technology was change too fast and expenditure is too high were about 16.6 and 16.5 percent respectively. The existing personal rely to use or lack of skill and difficult to recruit qualified personal were about 10.2 and 9.3 percent respectively.

**Barriers on the used of internet :** the establishments reported that connecting to the internet cost is too high by 11.2 percent. The followings were technology is too complicated and security concerns of about 10.5 and 8.8 percent respectively. The data communication is to slow or unstable by 6.7 percent. Lost working time because of irrelevant surfing was 4.9 percent.

**Barriers on the internet sales :** the establishments reported that business's form, goods and services are not applicable for internet sales by 7.2 percent. The followings were customers are not ready to use e-commerce of about 4.9 percent. Expenses of developing and maintaining web site and e-commerce are too high, about 4.6 and 4.2 percent respectively. While the security problem payments concerning was about 3.7 percent. (See detail in Table I)

**Table I Percentage of Establishments with Important Barriers on the Use of ICT by Economic Activity**

Barriers	Total	Business Trade and Services	Manufacturing	Construction	Other land Transport and Activities of Travel Agencies
<b>Number of Establishments</b>	<b>829,867</b>	<b>689,548</b>	<b>114,813</b>	<b>8,702</b>	<b>16,804</b>
<b>✧ The Use of ICT in General</b>					
<i>Expenditure too high</i>	16.5	16.5	15.9	21.3	18.3
<i>Technology too fast change</i>	16.6	16.7	15.6	21.6	16.7
<i>Existing personal reluctant to use or lack of skill</i>	10.2	10.3	9.4	16.7	8.5
<i>Difficult to recruit qualified personal</i>	9.3	9.4	8.3	14.1	7.7
<b>✧ The Use of Internet</b>					
<i>Connecting to the internet cost too high</i>	11.2	11.3	10.0	14.5	10.2
<i>Technology is too complicated</i>	10.5	10.6	9.8	15.1	10.1
<i>Security concerns</i>	8.8	8.9	7.8	15.9	9.9
<i>Data communication is to slow or unstable</i>	6.7	6.8	5.6	12.6	6.5
<i>Lost working time because of irrelevant surfing</i>	4.9	5.0	4.3	7.2	4.2
<b>✧ To Internet Sales</b>					
<i>Goods and service not applicable for internet sales</i>	7.2	7.3	6.4	8.6	6.8
<i>Customer not ready to use e-commerce</i>	4.9	5.1	4.1	6.1	5.2
<i>Expenses of developing and maintaining web site too high</i>	4.6	4.7	4.1	6.7	4.5
<i>Expenses of developing and maintaining an e-commerce too high</i>	4.2	4.3	3.5	5.6	4.5
<i>Security problem payments concerning</i>	3.7	3.8	3.2	5.5	3.8
<i>Uncertainty concerning contracts, terms of delivery and guarantee</i>	3.6	3.7	3.0	5.0	3.0
<i>Logistical problems</i>	3.3	3.4	2.7	4.0	2.4
<i>Law or regulation concerning e-commerce is not complete</i>	3.4	3.5	2.8	4.1	3.1

### 3. Data Comparison Among Regions

Comparison of the use of information and communication technology of establishments, with one person engaged or more among regions, the major findings (Table J) are as follows;

**Computer Used**, the results of the survey found that establishments in Bangkok had the highest proportion of using the computer, of about 29.1 percent. Followed by those in Vicinity had about 26.8 percent. Other regions had the proportion, less than 20.0 percent of using the computer.

Considering **the average computer per establishment** in each region, it appeared that establishments in Bangkok had the highest average of 6 computers per establishment. The other regions were not much different, that is, there were about 4 computers per establishment in Vicinity, and Central region. The establishments in Northern, Southern and Northeastern regions had average of about 2 computers per establishment.

The average **number of persons using computers in their normal work routines** in each regions, it was found that establishments in Central region and Bangkok had the highest average number of about 6 persons. The average number of persons using computers in Vicinity and Central region were not much different, about 4 persons per establishment. The establishments in Northern, Southern and Northeastern regions had average number of 2 persons per establishment.

**Internet Used**, there was about 43.8 percent of the establishment used Internet in the nation and 314,447 staffs or about 4 staffs per establishment using internet in their normal work routines (at least once a week). Considering by regions, it was found that establishments in Bangkok had the highest proportion, of about 51.2 percent and there were the average number of persons using internet about 5 persons. The other regions had less than 45.0 percent of using internet.

**Website Used**, there was very small proportion of about 3.3 percent. Considering the web site usage by region, it was found that establishments in Bangkok had the highest proportion of about 6.7 percent. The other regions were not much different, that is, there were about 3.4 and 2.1 percent in Vicinity and Central region respectively. The establishments in Northern, Southern regions had the same proportions about 1.8 percent . In Northeastern region had the lowest proportion of about 1.0 percent of establishment using website.

**Purchases via Internet**, there was vary small proportion of about 1.3 percent. For the payment via internet, there was very small proportion about 24.3 percent with purchases via internet.

Considering the purchasing via internet in each region, it was found that establishments in Bangkok and Vicinity had the same proportions of about 1.7 percent. In Central, Southern and Northern regions were about 1.3, 1.1 and 1.0 percent respectively. While establishments in Northeastern region had only small proportion of about 0.7 percent.

**Sales via Internet**, there was very small proportion of about 0.8 percent and the receivable via internet was also small proportion, about 16.0 percent. Considering by regions, it was found that establishments in Bangkok had the highest proportion of selling via internet of about 1.5 percent. Followed by those in Vicinity was about 1.2 percent. The other regions had less than 1.0 percent.

For the receivable via internet in each regions, it was found that establishments in Northeastern region had the highest proportion of receivable via internet of about 52.0 percent of selling via internet. The followings were in Southern and Central regions of about 22.5 and 17.6 percent respectively. The other regions had less than 13.0 Percent.

**Use of EDI or Other Computer Mediated Networks (other than internet)**, there was very small proportion of about 0.3 percent, especially establishments in Bangkok had the highest proportion of 0.6 percent. Other regions had the same proportions, of about 0.2 percent, of used EDI.

**Table J Percentage of Establishments by Use Information and Communication Technology and Economic Activity**

Information and Communication Technology	Whole Kingdom	Bangkok	Vicinity	Central region	Northern region	Northeastern region	Southern region
<b>Number of Establishments</b>	<b>829,867</b>	<b>247,518</b>	<b>78,471</b>	<b>131,634</b>	<b>117,444</b>	<b>150,005</b>	<b>104,796</b>
<b>Computer</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	79.3	70.9	73.2	83.6	85.7	85.5	82.7
Yes	20.7	29.1	26.8	16.4	14.3	14.5	17.3
● <i>Number of Computer (Units)</i>	<i>699,197</i>	<i>404,254</i>	<i>81,980</i>	<i>77,297</i>	<i>40,920</i>	<i>50,465</i>	<i>44,280</i>
<i>Average per Establishment (Units)</i>	<i>4.1</i>	<i>5.6</i>	<i>3.9</i>	<i>3.6</i>	<i>2.4</i>	<i>2.3</i>	<i>2.4</i>
<i>Connected to the Internet (Units)</i>	<i>327,175</i>	<i>202,705</i>	<i>31,946</i>	<i>30,609</i>	<i>18,839</i>	<i>22,589</i>	<i>20,484</i>
● <i>Number of Persons Using Computer (Persons)</i>	<i>741,327</i>	<i>400,927</i>	<i>82,572</i>	<i>127,180</i>	<i>39,131</i>	<i>48,164</i>	<i>43,352</i>
<i>Average per Establishment (Persons)</i>	<i>4.3</i>	<i>5.6</i>	<i>3.9</i>	<i>5.9</i>	<i>2.3</i>	<i>2.2</i>	<i>2.4</i>
<b>Internet</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	56.2	48.8	68.9	57.1	58.6	64.2	57.9
Yes	43.8	51.2	31.1	42.9	41.4	35.8	42.1
● <i>Number of Persons Using Internet (Persons)</i>	<i>314,44</i>	<i>200,510</i>	<i>32,067</i>	<i>28,853</i>	<i>16,914</i>	<i>18,099</i>	<i>18,002</i>
<i>Average per Establishment (Persons)</i>	<i>4.2</i>	<i>5.4</i>	<i>4.9</i>	<i>3.1</i>	<i>2.4</i>	<i>2.3</i>	<i>2.4</i>
<b>Website</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	96.7	93.3	96.6	97.9	98.2	99.0	98.2
Yes	3.3	6.7	3.4	2.1	1.8	1.0	1.8
<b>Purchases via Internet</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	98.7	98.3	98.3	98.7	99.0	99.3	98.9
Yes	1.3	1.7	1.7	1.3	1.0	0.7	1.1
<b>Payment via Internet</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	75.7	82.5	56.6	71.6	84.2	67.7	76.9
Yes	24.3	17.5	43.4	28.4	15.8	32.3	23.1
<b>Sales via Internet</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	99.2	98.5	98.8	99.6	99.4	99.7	99.4
Yes	0.8	1.5	1.2	0.4	0.6	0.3	0.6
<b>Receivables via Internet</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	84.0	88.0	88.1	82.4	88.1	48.0	77.5
Yes	16.0	12.0	11.9	17.6	11.9	52.0	22.5
<b>Use of EDI or Other Computer Mediated Networks</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
No	99.7	99.4	99.8	99.8	99.8	99.8	99.8
Yes	0.3	0.6	0.2	0.2	0.2	0.2	0.2