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The EU surveys on ICT usage of enterprises

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1. History

There has been a rapidly growing need for statistical information on Information and Communication Technology (ICT) usage in enterprises in recent years, mainly due to the fast diffusion of the Internet in enterprises, its use for electronic commerce, and the perceived potential impact on economic growth and competitiveness.

The statistical offices in the Nordic countries, Canada and Australia, whose economies were relatively advanced as regards ICT usage, were the first to launch pilot surveys in this field. Australia has been carrying out surveys on ICT usage by business since 1994 (with e-commerce covered since 1999); Canada did a first e-commerce survey in 1999. As regards the Nordic countries, first tests of an ICT/e-commerce survey were carried out by Denmark and Finland in Winter 1998/99. A first draft proposal for a model questionnaire was presented at the Voorburg Group on Service statistics meeting in Christchurch in October 1999; a revised questionnaire was tested in the period end of 1999 / first half of 2000 by the Statistical Offices of Denmark, Finland, Norway and Sweden. At the January 2000 of the Working Group on Information Society Statistics, Eurostat, the Statistical Office of the European Communities, proposed that a Community-wide survey should be developed. Statistics Denmark presented a proposal for a model questionnaire to the OECD Working Party on Indicators for the Information Society (WPIIS) in April 2000.

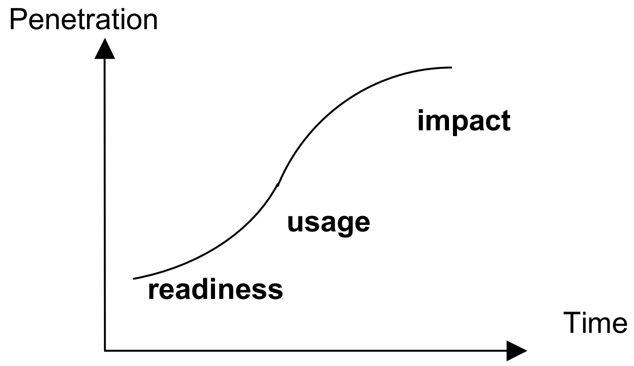
In March 2000, the Lisbon European Council set the goal of making Europe the most competitive knowledge based economy in the World by 2010. As part of this strategy, the European Commission developed the eEurope 2002 Action Plan during Spring 2000, and the Feira European Council endorsed this in June 2000. The Action Plan proposed a number of specific targets for 2002, and a corresponding set of benchmark indicators to monitor progress towards these targets. This strongly increased the amount of Information Society related data needed by the European Commission.

In a Eurostat Statistical Task Force meeting in June 2000 a first draft of a questionnaire for a Community-wide survey was discussed with Member States and Commission Services. This took the April 2000 Danish proposal as a starting point, and included additional elements to reflect new policy requirements. The Commission Directorates General for Enterprises and the Information Society, which were interested in obtaining official statistical information on ICT usage and e-commerce in enterprises, contributed substantially to the development of the content of the model questionnaire. The model questionnaire was discussed further in a second Task Force meeting in September 2000, and was finalised at a Working Group meeting in November 2000.

Based on the model questionnaire, a first round of EU ICT usage/e-commerce surveys, jointly co-ordinated by Eurostat and by Statistics Denmark, was carried out by 13 EU Member States, mainly in the first half of 2001. A second round of surveys, based on a revised questionnaire was carried out in 2002. The questionnaire for the 2003 survey round is currently in preparation.
Eurostat is currently preparing a statistical legal act on ICT statistics that will make the collection of data on ICT usage of enterprises mandatory in Member States in the future.

2. Conceptual framework

With the growing penetration of ICT technology, attention tends to shift from readiness (penetration in % of enterprises) to usage (use of ICT for different purposes) and later to the impact of the use. Most enterprises today use computers, and Internet access of enterprises is now high in most countries. While the first round of community surveys focused on readiness and usage of ICT, the impact side is claiming more attention now. Readiness related in the first survey to the penetration of key IC technologies in enterprises, usage to the use of the Internet and other computer mediated networks like EDI for purchases and sales (e-commerce). Although some impact related questions are worth including in the surveys, it is difficult for enterprises to indicate the ultimate effects on productivity and growth. These issues will mainly be covered by econometric analyses of firm level data.



The concepts and definitions developed within the OECD Working Party and e-commerce OECD Expert Group on e-commerce transactions were also used for the Eurostat surveys. A broad definition of e-commerce was applied with some results broken down by Internet/other computer mediated networks (EDI).

Table 1: OECD definitions applied

e-commerce transactions	**OECD definition**	**Guideline for interpretation of definition**
Broad definition	An **electronic transaction** is the sale or purchase of goods or services conducted over computer-mediated networks. The goods and services are ordered over those networks, but the payment and ultimate delivery of the good or service may be conducted on or off-line.	**Include:** orders received or placed on any online application used in automated transactions such as Internet applications, EDI, Minitel or interactive telephone systems.
Narrow definition	An **Internet transaction** is the sale or purchase of goods or services conducted over the Internet. The goods and services are ordered over the Internet, but the payment and ultimate delivery of the good or service may be conducted on or off-line.	Include: orders received or placed on any Internet application used in automated transactions such as Web pages, Extranets and other applications that run over the Internet, such as EDI over the Internet, Minitel over the Internet, or any other web enabled application regardless of how the web is accessed (e.g. through a mobile or a TV set, etc). Exclude: orders received or placed by telephone, facsimile or conventional e-mail.

3. Content of the surveys

There was a significant change between the survey rounds in 2001 and 2002 in the design and content of the Eurostat model questionnaire. In the 2001 survey, basic concepts and definitions were harmonised with the April 2000 OECD model questionnaire, whilst the design and content of the questionnaire was somewhat different. The 2002 Eurostat model questionnaire was characterised by a strong harmonisation with a revised OECD model. Compared to the year before, a more differentiated and explicit filtering was applied.

The Eurostat questionnaire for the 2001 survey round had 3 modules and a total of 22 questions:

A: Use of Information and Communication Technologies (5 questions)
B: Use of electronic commerce for purchases (8 questions)
C: Use of electronic commerce for sales (9 questions).

Table 2: Content of the 2001 questionnaire

Module A: Use of Information and Communication Technologies
A1 Use of PCs, workstations
A2 Use of Intranet/EDI/web
A3 Web presence
A4 Type of connection
A5 Internet use: Problems/barriers

Module B: Use of electronic commerce for purchases
B1 Use of e-commerce for purchases
B2 Problems/barriers relating to purchases
B3 Purchases plans for 2001
B4 Purchases: since how long
B5 Purchases: for which processes
B6 Perceived benefits purchases
B7 Use of B2B market places for purchases
B8 % of purchases by e-commerce

Module C: Use of electronic commerce for sales
C1 Use of e-commerce for sales
C2 Problems/barriers relating to e-commerce sales
C3 Plans for 2001
C4 E-commerce sales: since how long
C5 Sales: facilities offered
C6 Perceived benefits of e-commerce sales
C7 Use of B2Bmarket places for sales
C8 % of sales by e-commerce
C9 % of sales to households

General variables to assess % of total turnover

The questionnaire for the 2002 survey round had 5 modules and a total of 29 questions, of which 7 optional questions (the number of mandatory questions remained unchanged).

A: General Information about ICT systems (3 questions)
B: Use of Internet (7 questions, of which 1 optional)
C: E-commerce via Internet (14 questions, of which 5 optional)
D: E-commerce via EDI or networks other than Internet
(4 questions, of which 1 optional)
E: Barriers on e-commerce (1 question)

Table 3: Content of questionnaire for 2002 survey round

(optional questions in italic)
Module A: General Information about ICT systems
A1 Use of computers
A2 Share of employees using computers/computers connected to Internet
A3 Use of e-mail, Intranet, Extranet

Module B: Use of Internet
B1 Use of Internet
B2 Type of external connection to Internet
B3 Purposes of Internet use as consumer of services
B4 Does the enterprise have a web site
B5 Does the web site include information in foreign languages
B6 Purposes of Internet use as a provider of services
B7 Is website designed to be accessible by disabled persons

Module C: E-commerce via Internet
<u>Purchases</u>
C1 Has the enterprise purchased goods services via the Internet
C2 % of total purchases via Internet
C3 Online payment of purchases
C4 Use of B2B market places for purchases
C5 Expected benefits from purchases
<u>Sales</u>
C6 Has enterprise received orders via the Internet
C7 % of total turnover via Internet sales
C8 % B2B, % B2C
C9 Breakdown of Internet sales by destination (own country, EU, other)
C10 Online payments for sales
C11 Is enterprise targeting markets in other countries
C12 Use of B2B market places for sales
C13 Link of e-commerce system to business processes
C14 Motivations for Internet sales

Module D: E-commerce via EDI or networks other than Internet

D1 Use of EDI or networks other than Internet for purchases/sales
D2 Technology used (EDI, Minitel, other)
D3 % of total purchases via EDI/other networks
D4 % of total sales via EDI/other networks

Module E: Barriers on e-commerce

E1: Problems and barriers related to online sales

Module X: Background information
Activity of the enterprise, number of employees, purchases, turnover,

Compared to the year before, the module on the use of ICT was split into two and enhanced by questions on the share of employees using computers; computers connected to the Internet; the purpose of the use of the Internet by the enterprise as a consumer of services, and as a provider of services. Furthermore, a question on the languages available on the enterprise web site was included.

The e-commerce part of the questionnaire was split into a module on e-commerce via Internet and a module on e-commerce via EDI/other networks. It was found that questions related to purchases were in general more difficult to answer because the decentralised character of purchases in some enterprises. The number of questions related to e-commerce purchases was therefore considerably reduced compared to the year before. In the draft questionnaire for the 2003 survey round the number was further cut down.

The answers to questions on problems and barriers seemed not to vary strongly from year to year and it was felt that it was not necessary to include the full set of questions every year. Therefore fewer mandatory questions relating to problems and barriers were included in the 2002 survey compared to the year before. Nevertheless many countries included the non-mandatory barriers questions in their surveys.

At the end of the 2002 survey questionnaire, a module on key economic parameters of the enterprise (activity, number of employees, total purchases of goods and services, total turnover) was included for those countries that cannot get this information from other sources. Some of the participating countries included additional questions in their surveys: Spain and Portugal for example had in both surveys questions related to ICT staff (number, problems of recruitment).

4. Participating countries and scope of surveys

<u>2001 survey round</u>

Thirteen of the fifteen EU Member States participated in the 2001 round of Community surveys on the ICT usage of enterprises (France and Belgium were the exceptions). However, a further two countries carried out a limited programme: Ireland carried out a pilot testing of the questionnaire only, whilst Germany covered only two NACE sections.

In general, countries surveyed enterprises with 10 or more persons employed, though some countries also included micro-enterprises but reported separately on them. The total gross sample size of the 2001 survey round amounted to about 103 000 enterprises, of which about 40 000 were micro-enterprises and over 60 000 enterprises had more than 9 persons employed. About 5% of EU enterprises with 10 or more persons employed thus received a questionnaire or were interviewed. In all participating countries questionnaires were sent out by mail to enterprises. Greece in addition carried out face-to-face interviews. Most countries sent out reminders or phoned enterprises in order to increase the response rate. The overall response rate amounted to 46%, or over 47 000 filled in questionnaires. While the overall size of the sample was large, sample size varied considerably between countries.

Most countries included NACE sections D (Manufacturing), G (Wholesale and retail trade), H (Hotels and Restaurants), I (Transport and Communication), J (Financial intermediation and K (Real estate and Business services). A few other sectors were covered by some countries (for example, the construction sector in Denmark, electricity, gas and water supply in Italy). Most of the surveys were carried out in the first half of 2001.

Table 4: Participating countries and scope of 2001 survey round

	Sample size (gross)	NACE sections covered	Lower size limit em-ployed persons	Survey period
Denmark	5042	D, F,G-K, excl. J	5	Oct./Nov. 2000
Germany	31000	G, H	1	Feb./March 2001
Greece	4790	D, G-K	10	June/Sep 2001
Spain	5627	D, G-K	1	Feb. 2001
Ireland	101	D, G-K	10	June 2001
Italy	11360	D, G-K E	10	April/May 2001
Luxembourg	1000	D, G-K	10	May/June 2001
Netherlands	13000	D, F, G-K	5	July 2001
Austria	4698	D, G-K	10	March 2001
Portugal	7945	C,D, F, G-K	1	May 2001
Finland	4946	D, F, G-K, excl. J	5	Jan./Feb. 2001
Sweden	3995	D, G-K	5	April/June 2001
UK	9000	D, G-K	10	Jan. 2001

<u>2002 survey round</u>

All 15 EU Member States participated in the 2002 round of Community surveys on the ICT usage of enterprises. In addition some of the Candidate countries (Baltic States, Czech Republic, Hungary) carried out ICT usage enterprise surveys based on the Eurostat model questionnaire. Most of the participating EU countries carried out the surveys in the first half of 2002. The total gross sample size of the 2002 survey round amounted to about 135 000 enterprises, of which about 20 000 were micro-enterprises and over 110 000 were enterprises with 10 or more persons employed. Nearly 10 % of EU enterprises with 10 or more persons employed thus received a questionnaire. Data on response rates are only available from a couple of countries so far. The final total response rate is expected to be higher than in the 2001 survey round, and will probably amount to slightly above 50% or 70 000 filled in questionnaires. In the UK, Portugal, and Spain, where the surveys were mandatory the response rate reached about 80%.

As in 2001, the lower enterprise size threshold was 10 persons employed, the standard NACE coverage in the 2002 round was D, and G-K, and parts of J (financial intermediation and insurance).

Table 5: Participating countries and scope of 2002 survey round

	Sample size (gross)	NACE sections covered	Lower size limit, employed persons	Survey period
Belgium	5000	D, G-K	10	June 02
Denmark	5000	D, F,G-K, excl. J	5	Oct./Nov. 2001
Germany	29366	D, G-K, excl. J	1	March/May 2002
Greece	3766	D, G-K	10	Feb.-March 2002
Spain	14000	D, G-K, O	10	May-Sep 2002
France	12000	C, D, E, G, K, 92	10	October 2002
Ireland	6000	D, G-K	10	June 2002
Italy	12000	D, G-K, E	10	February 2002
Luxembourg	1000	D, G-K	10	May 2002
Netherlands	13000	A-O, excl. L	5	May 2002
Austria	4700	D, G-K	10	March-June 2002
Portugal	8000	D, G-K	1	April-June 2002
Finland	5000	D, G-K	5	Jan./Feb. 2002
Sweden	4000	D, G-K, O	5	April/May 2002
UK	12000	D, G-K	10 (+micro - enterprises)	Jan. 2002

5. Main results

<u>2001 survey round</u>

At the time of the survey, 93% of enterprises (of 10 or more employed persons) in the 12 EU countries shown in Table 6 used computers, 69 % had web access and 46 % had their own web site. Results were similar for small and medium sized enterprises (SME), those with 10 to 249 persons employed, which represent 97% of all enterprises with 10 or more persons employed. ICT usage was more widespread in large enterprises than in SMEs. Almost all large enterprises used computers at the time of the survey, 81 % had web access and 80 % a web site at the beginning of 2001.

As regards ICT usage, the Nordic countries (Denmark, Sweden and Finland) were in the lead, with around 90% of enterprises having web access and over 60% of enterprises having an own web site. Southern European countries in many parameters were somewhat lagging behind. When looking at results for Germany it should be taken into account that they refer to two economic sectors only -distribution, hotels and restaurants- and thus cannot be compared directly with data for other countries.

Table 6: Use of ICT by enterprises in Europe (1)

	Enterprise size class	**All**	DK	D	EL	E	I	L	NL	A	P	FIN	S	UK
Computer	Total	**93**	95	96	85	91	86	91	93	92	89	98	97	92
	Small/ medium	**92**	95	96	84	91	86	90	93	92	89	98	98	92
	Large	**97**	100	96	98	100	99	99	:	100	99	100	100	100
Web access	Total	**69**	87	67	51	67	66	55	79	76	72	91	90	63
	Small/ medium	**68**	86	67	50	66	66	54	77	76	72	91	90	62
	Large	**81**	99	77	84	97	94	70	:	91	94	97	99	90
Own web site	Total	**46**	63	67	29	7	9	41	47	54	30	60	68	50
	Small/medium	**44**	62	65	28	6	9	39	43	53	30	58	67	49
	Large	**80**	89	86	54	35	22	67	:	86	59	93	91	80

As regards the type of Internet connection used in the first half of 2001, 46% of enterprises in the countries participating in the survey used an ISDN connection (65% of large enterprises and 45% of SMEs used ISDN). 27 % still relied on slower analogue connections, while 14% used broadband (of which half via xDSL and half via other broadband connection >2 Mbps). A relatively high share of large enterprises used broadband: 18% via xDSL and 27% via other broadband connections. 7% of all enterprises and 17% of large enterprises accessed the Internet via a mobile phone.

ISDN connections had a high share in Austria and Germany, whilst Finland led in terms of broadband connections.

The most important perceived barriers to using the Internet were (first half of 2001)

- Lack of security (66%)
- Data communication too slow or unstable (55%)
- Lacking qualification of personnel (47%)
- Internet access charges too high (44%)
- Lost working time/irrelevant surfing (41%)

E-purchases

At the beginning of 2001, 27 % of enterprises in the EU countries participating in the survey used e-commerce for making purchases. 14 % of enterprises used e-commerce for at least 1% of their purchases. 5 % of enterprises made purchases through specialised B2B marketplaces.

Whilst nearly half of large enterprises used e-commerce for purchases, only a quarter of small and medium enterprises use e-commerce for that purpose. 10 % of large enterprises and 8 % of small enterprises planned to use e-commerce for purchases in 2001. 4% of enterprises used e-commerce for 10% of more of their purchases.

The Nordic countries, the UK and the Netherlands were in the lead as regards the share of enterprises using e-commerce for purchases. Sweden had the highest share (16 %) of enterprises making purchases via specialised B2B marketplaces.

As regards economic sectors the business services sector had the highest percentage of enterprises using e-purchasing (29%), followed by the distribution sector (20%). The hotel and restaurant sector had a relatively low percentage of enterprises using e-purchasing (11%). Within the manufacturing sector, the electrical and optical industry had the highest share (28%), whilst the leather industry had the lowest (4%).
In the first half of 2001, 18 % of enterprises used e-purchasing processes for ordering, 7 % used it for payment and 6% for electronic delivery.

Table 7: Use of e-commerce for purchases in 2001 (1)

	Enterprise size class	**All**	DK	D	EL	E	I	L	NL	A	P	FIN	S	UK
e-commerce used	Total	**27**	37	37	5	9	10	19	40	15	12	35	31	33
	Small/ medium	**25**	36	35	5	9	10	18	38	14	12	34	31	32
	Large	**47**	66	51	8	20	21	28	:	30	22	45	37	50
Internet e-commerce for > 2 years	Total	**3**	:	5	1	3	2	5	:	4	3	:	:	:
	Small/medium	**3**	:	5	1	3	2	5	:	4	2	:	:	:
	Large	**2**	:	2	1	3	3	8	:	7	5	:	:	:
Internet e-commerce planned for 2001	Total	**8**	3	9	5	18	1	7	4	14	7	11	:	9
	Small/medium	**8**	3	9	5	18	1	6	3	14	7	11	:	9
	Large	**10**	5	9	11	23	5	15	:	18	8	22	:	14

The question on the perception of barriers to e-purchases resulted in the following ranking

- Uncertainty for contracts, terms of delivery and guarantees (40%)
- Goods and services not suitable for e-commerce (37%)
- Uncertainty in making payments (37%)
- Stock of potential suppliers too small (35%)
- Logistical problems (speed and timelines of delivery) (30%)
- Delivery costs too high (24%)

The benefits from e-purchasing were ranked by enterprises as follows (2):

- Speed of processing (18%)
- Simplification of tasks (16%)
- Cost savings (13%)
- Offers from a large number of suppliers available (9%)

E-sales

At the beginning of 2001, 19 % of enterprises in the EU countries participating in the survey used e-commerce for sales. However, only 6 % used it for at least 1% of their sales and only 2% used it for 10 % or more of their sales. Only 4 % of enterprises used specialised B2B Internet marketplaces to make e-commerce sales. Whilst over 40% of large enterprise had e-commerce sales, only one out of six SMEs used e-commerce to make sales. Use of Internet e-commerce for sales is a relatively new phenomenon, only 2 % of enterprises having used it for more than 2 years in 2001.

The Netherlands and Denmark were in the lead as regards the share of enterprises using e-commerce for sales. As regards economic sectors, the hotels and restaurants sector had the highest percentage of enterprises using e-sales (15%), followed by transport and communication (12%) and distribution (11%). The manufacturing sector had the lowest share (8%); this sector is in many cases selling its products via intermediaries. Inside the manufacturing sector, the coke, petroleum and nuclear fuel industry had the highest share of enterprises making e-sales, whilst the leather industry had the lowest.

In the first half of 2001 12 % of enterprises used e-sales processes for taking orders, 3 % used it for receiving payments and 1% for electronic delivery.

Table 8: Use of e-commerce for sales in 2001 (1)

	Enterprise size class	**All**	DK	D	EL	E	I	L	NL	A	P	FIN	S	UK
e-commerce used	Total	**19**	28	31	6	6	3	10	36	12	6	14	12	16
	Small/medium	**17**	27	29	6	6	3	9	36	11	6	13	11	16
	Large	**42**	46	48	13	24	8	27	:	26	19	26	19	35
Internet e-commerce used for > 2 years	Total	**2**	:	4	1	1	1	2	:	3	1	:	:	:
	Small/medium	**2**	:	4	1	1	1	2	:	3	1	:	:	:
	Large	**4**	:	5	3	6	1	7	:	7	4	:	:	:
Internet e-commerce planned for 2001	Total	**11**	13	13	5	14	2	7	7	16	6	13	18	12
	Small/medium	**11**	13	12	5	14	2	7	6	16	6	13	17	12
	Large	**16**	25	16	6	15	7	5	:	22	5	21	28	18

Important barriers for e-commerce sales named by enterprises were:

-Goods and services not suitable for e-commerce (41 %)
-Cost of developing/maintaining system too high (40%)
-Uncertainty for payments (38%)
-Uncertainty for contract terms of delivery and guarantees (37%)
-Stock of potential customers too small (36%)

As regards the perception of benefits from e-commerce sales (3) the ranking was

- Reaching new/more customers (14%)
- Avoid losing market share (11%)
- Speed of processing (11 %)
- Geographic expansion of market (10%)
- Cost reduction (9 %)
- Improvement to quality of service (9%)

First results from 2002 survey round

Denmark carried out its survey already at the end of 2001 and was therefore the first country that provided data in the framework of the 2002 survey round. Although Denmark is one of the most advanced countries in the EU as regards the ICT usage of enterprises, the figures show still a marked increase in ICT usage by businesses compared to the year before.

Table 9: ICT usage in Danish enterprises 2000/2001 (4)

% using	end of 2000	end of 2001
Computers	95 %	98 %
Internet	89 %	95 %
Own web site	67 %	76%
Purchases via e-commerce	41 %	51% (5)
Sales via e-commerce	30%	31% (5)

6. Lessons learnt

Sampling universe
As a result of the low number of enterprises in the universe in certain economic sectors, the aggregation of some NACE subsections was necessary for the presentation of results of the 2001 survey round in the case of some smaller economies. In these cases, results for the detailed NACE breakdowns were only available at a European level. In the 2002 survey round, a smaller number of NACE subsections were requested: the number of NACE aggregates for which data were to be reported was reduced from 19 to 13.

Response rates/system of reminders
The average weighted response rate for the 13 countries participating in the 2001 survey round was 46%.
Whilst response rates for micro-enterprises tended to be lower than for other enterprises, the Italian and the Swedish survey found that large enterprises showed a lower response rate than small ones. This might be due to it being more difficult for large enterprises to answer to certain questions than for smaller ones. In the Swedish survey, the medium sized enterprises had the highest response rate; in the Italian survey, the small enterprises. (6)
As regards economic sectors, manufacturing industry and the distribution sector showed the highest response rates, whilst hotels, restaurants and business services showed the lowest. (7)

Reminders
Before sending out reminders, the response rate in Spain amounted to 24 %, in Sweden to 32 %. Without reminders typical response rates seem to amount to around 25%.
However, the Swedish response rate nearly doubled after two rounds of reminders.
Some countries had to apply more rounds of reminders, including telephone calls, than originally foreseen, in order to achieve the response rate of 50 % they aimed at.

Table 10: Response rates by reminder round in Swedish survey

	Date	Result	%
1st questionnaire	2001-04-18- - 2001-04-25	1255	31,7
1st reminding card	2001-04-26- -2001-05-08	609	15,4
2nd questionnaire	2001-05-09- -2001-05-23	600	15,2
3rd questionnaire	2001-05-24- -2001-06-06	236	6,0
Refusals	-	88	2,2
Over-coverage	-	4	0,0
Non-response	-	1161	29,4
Total	**-**	**3955**	**100,0**

Because of biased non-response in these surveys, a high response rate was important for obtaining representative results. In Denmark, ICT usage results were 4-6 percentage points lower after the first reminder compared to the results before the reminder. The number of written reminders used in Member States varied between 1 and 3. In most countries two written reminders plus phone calls seemed necessary.

Treatment of item non-response
Non-response is strongly biased towards enterprises not using ICT. The Eurostat enquiry therefore followed the suggestion of Statistics Denmark that in cases of item non-response, the average for the enterprises which respond should not be imputed to non-respondents, in order to minimise distortion of results. However, this can lead to an underestimation of the % of users for certain parameters.

Enterprise size threshold
The enterprise size threshold has a strong impact on results (especially on the percentage of enterprise-type data). A common enterprise size threshold facilitates comparison and valorisation of results. Although countries using a lower threshold were able to filter out the results needed, additional work was involved producing tabulated data for the harmonised cut-off level. In the 2002 survey round three employment size classes were fixed 10-49, 50-249, 250+.

NACE classes
The concepts '% of sales' and '% of purchases' cannot be applied to NACE section J (financial sector) in the same way as for other NACE sections. Appropriate substitutes for sales and purchases have to be found for the banking sector. Moreover, many financial products (loans, insurance policies, etc.) lead to a stream of payments over several years, and so measuring the share attributable to e-commerce is not straightforward.

Reference periods
Although a common reference period was given in the outline of the model survey, it was not possible to fully harmonise reference periods in the 2001 enquiry since there were different survey dates, and some of the answers relate to the time of the survey. It is planned to obtain better harmonisation of survey periods in order to make the results more comparable.

Items related to the Eurostat model questionnaire

Internet versus all networks
A problem for respondents in many countries was the differentiation between EDI and Internet. In addition, technical convergence (EDI over Internet) blurred the difference between the two technologies. In the 2001 model questionnaire, EDI and Internet were integrated into the same module. The feedback from the survey indicated that it would be better to separate EDI and Internet by putting them into different modules, and so in the 2002 survey, separate modules were created.

Sales
As mentioned above, one problem was the confusion between EDI and Internet. Another one was to filter out e-mail generated sales. A further issue was the fact that some enterprises had very small e-commerce sales, but were counted as enterprises with e-commerce sales although their e-commerce was tiny. This was solved by applying thresholds (e.g. 1% of turnover) in the presentation of results.

Purchases
It was often more difficult for respondents to fill in information on the percentage of purchases compared to sales. Sometimes the total amount of purchases was not known to the IT manager. Non-response was therefore in general higher than for sales. However, response rates were sufficiently high to justify maintaining quantitative questions on purchases in the questionnaire. The 2002 survey had a reduced number of questions relating to purchases compared to the year before. An improved and more precise definition of purchases is needed.

Questions on barriers and problems
Some Member States experienced low response rates and little variation between sectors as regards questions on barriers. It seemed difficult to get answers from enterprises without e-commerce activities. In addition some barriers seemed to be missing. It was proposed to skip questions on barriers for those respondents who did not have access to Internet or EDI or to make all barrier questions optional. As a result of these comments, the number of questions on barriers has been strongly reduced in the model questionnaire for the 2002 survey.

7. Future perspectives for the surveys

The eEurope 2005 Action Plan and other policy needs will require annual surveys on ICT usage in enterprises. In the immediate future, there will be further work on the growth of broadband usage, e-skills, and on security and trust building issues. These are reflected in the draft questionnaire for the 2003 survey round, which has recently been submitted to Member States. Eurostat hopes that these annual surveys will continue to provide a flexible tool for following the impact of ICT on European enterprises, and provide statistics that will be comparable with those produced in other areas of the World that also use the methodologies co-ordinated at OECD and Voorburg meetings.

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Statistics in Focus Theme 4 -12/2002, Luxembourg 2002
http://europa.eu.int/comm/eurostat, see theme 4, under 'Statistics in Focus'

E-commerce in Europe- Results of the pilot surveys carried out in 2001
Detailed tables series, Luxembourg, 2002.

Footnotes

(1) All data quoted refer to enterprises with 10 or more persons employed.
The column labelled 'All' in the table is the weighted average for the Member States appearing in each line of the table. For NACE coverage, see table 4. Data for the Netherlands for small and medium sized enterprises excludes enterprises with between 50 and 249 persons employed. Data for Denmark and Finland include the construction sector, data for Denmark, Finland and Italy exclude the financial sector. Data for Germany relates only to NACE G and H.

(2) The questions relating to the benefits were normally only answered by the enterprises making e-commerce purchases (1/4 of enterprises) , thus resulting in lower figures than for the barrier questions, which were answered by all enterprises.

(3) The questions relating to the perceived benefits from e-commerce sales were normally only answered by the enterprises making e-commerce purchases (1/5 of enterprises) , thus resulting in lower figures than for the barrier questions, which were answered by all enterprises.

(4) Enterprises with 10 or more persons employed

(5) Not directly comparable to 2000 because of a change in the questionnaire: the figures for sales and purchases for 2001 for Denmark are the sum of transactions via Internet and other computer mediated networks and might be slightly overstated because of double-counting. At the end of 2001, 46% of Danish enterprises made purchases via Internet, 5 % via EDI or networks other than Internet; 24% made sales via Internet and 6% via EDI or networks other than Internet.

(6) In Italy the response rate of small enterprises amounted to 74%, while for large enterprises it reached only 45%. The differences were much smaller in Sweden (69% versus 67%).

(7) In Portugal, where the survey was mandatory there was a 15% difference in response rates between hotels and restaurants (68%) and the distribution sector (83%).