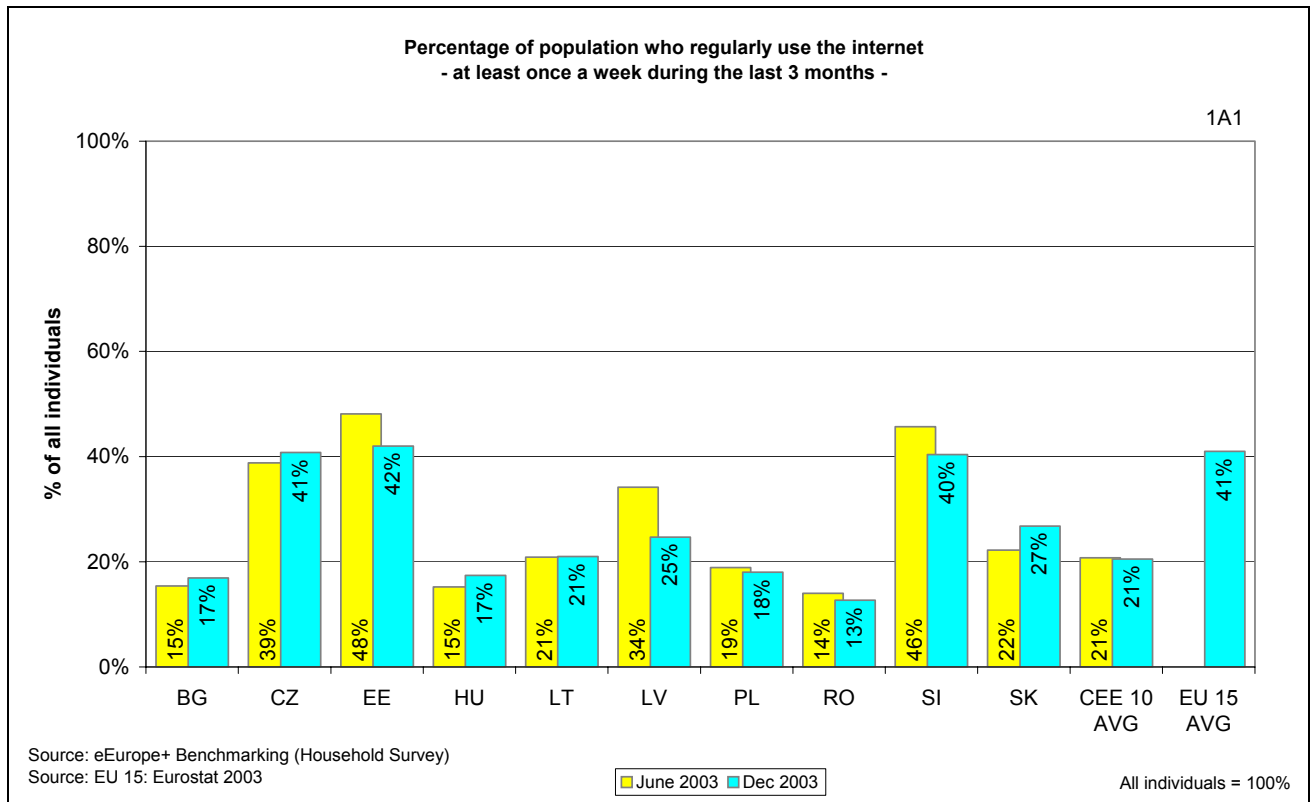# Central and Eastern Europe Information Society Benchmarks

Survey Results
Objective 1
A cheaper, faster, secure Internet

September 2004

1.A   CHEAPER AND FASTER INTERNET ACCESS

1.A.1   Percentage of population who regularly use the internet

Levels of regular Internet access are stagnating among the CEE 10

About 40-42% of individuals in the Czech Republic, Estonia, and Slovenia were using the Internet weekly at the end of 2003, about the same as the EU 15 average of 41%. The Slovak Republic and Latvia reported about one quarter of individuals accessing regularly whilst other countries reported one fifth or less of their individuals accessing regularly and only 13% in Romania.

Decreases seen for Estonia, Latvia, and Slovenia are due to the change in interview methodology from CATI to Face-to-Face interviews. Overall, the picture is one of stagnation during 2003, apart from in the Slovak Republic, which records an increase. This suggests that further triggers or policy actions are required to further increase regular Internet use for most CEE countries i.e. lower costs, more attractive content and more opportunities to access the Internet elsewhere.

1.A.2   Main reasons for not using the Internet

For those not wanting to use the Internet, no matter how advanced the country regarding Internet penetration, the same barriers are relevant i.e., "don't want the Internet", "not knowing how to use a computer", "no access device at home", "computers are too expensive".

Fourteen possible inhibitors or barriers to usage among the population who had not used the Internet during the last year or not all were presented to the respondents and are grouped here into five categories: personal reasons, user relevance, awareness and skills, infrastructure/access and financial reasons. Arguably, some reasons could be included in more than one category for example, "there are technical barriers".

Categories of personal Internet use:

- Personal reasons: I don't want Internet, I have no time
- Relevance of Internet to users: content is not useful, privacy/security issues, language barriers
- Awareness and skills: I don't know exactly what it is, Internet is too complicated, don't know how to use a computer, there are technical barriers
- Infrastructure and access: there are technical barriers, no access device at home, no computer at work, no public Internet access
- Financial reasons: Internet connection is too expensive, computers are too expensive.

Six out of the choice of fourteen reasons are included in the four most frequently selected reasons, with four reasons most frequently chosen by respondents in most countries:

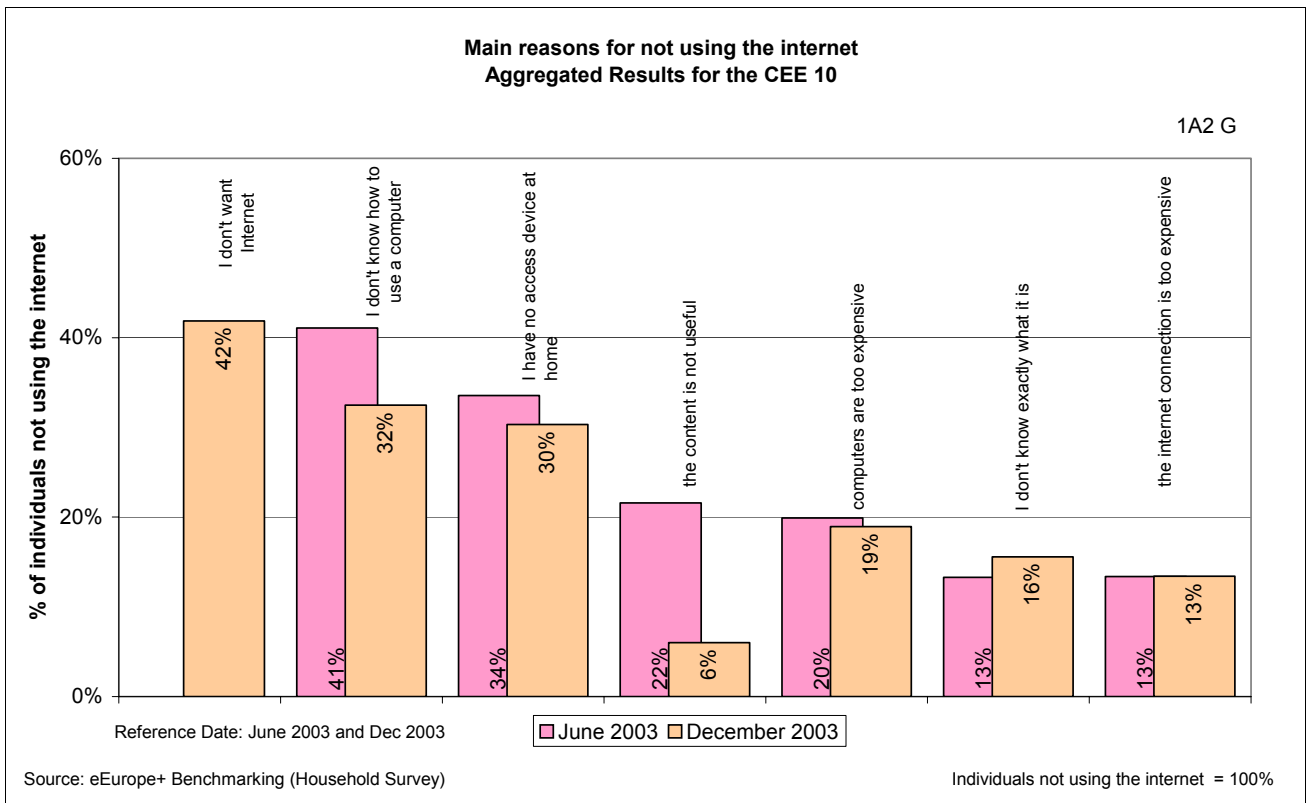| Reason for not using Internet	Frequency of 1st, 2nd and 3rd and 4th choice
No access device at home	9
Don't want Internet	9
Don't know how to use a computer	8
Computers are too expensive	8
Don't know exactly what Internet is	3
Internet connection is too expensive	3

The main reasons for not using the Internet include the lack of an access device at home, where it is possible that non-users perceive that the Internet is best accessed at home and are not aware of other access locations or these are not available. Not wanting the Internet is indicative of a perception that it is not useful, meaningful, or a priority in their lives. It is notable that for Hungary (47% 'not wanting the Internet'), (Hulik.V, Warsaw 2004[1]), this inhibitor has the highest response level overall for any reason for any country, and is important in Lithuania (31%), Latvia (36%) and Poland (38%). A lack of skills and a lack of exposure to computers is also regarded as important, especially in Bulgaria (46% 'don't know how to use a computer'). The cost of computers is a significant barrier in all countries except Slovenia. These responses describe the existence of Digital Divides and whilst a lack of skills and affordable access are resolvable issues with time and resources available, a choice of not wanting to use the Internet relates partly to a lack of useful content and personal need/desire.

Hungary (eEurope+, December 2003): 47% of individuals stated that they 'didn't want the Internet', the highest response level for any of the 15 inhibitors listed in the Household Survey. Only 17% of Hungarians are accessing the Internet regularly (eEurope Dec 2003+) one of the lowest levels amongst the CEE 10. Despite PCs not being especially expensive, only 10% of the population own PCs. These results are echoed by the World Internet Project Report, September 2003. There are now extensive programmes in place to stimulate usage with eHungary Points for public access alongside media campaigns to inform and raise awareness. These enable citizens to use the Internet via modern computers during fixed opening hours at an affordable charge, providing a broadband network connection, operating in a network service system, user guaranteed by local community and state control, provision of integrated 'standardised' services with professional assistance for citizens to use the services[2].

Where there are fewer non-Internet users in a CEE 10 country, the wider is the spread of reasons for not using the Internet, so the predominance of some of these responses in Bulgaria, Hungary, Lithuania, Latvia, Poland, and Romania is typical of early adopters with low levels of awareness. Issues relating to content, privacy/security and language barriers are not considered important, apart from in the Czech Republic where lack of useful content was considered important by 11% of the respondents. A lack of experience of Internet use will mean that respondents will be unable to answer questions meaningfully about content, language barriers and, security.

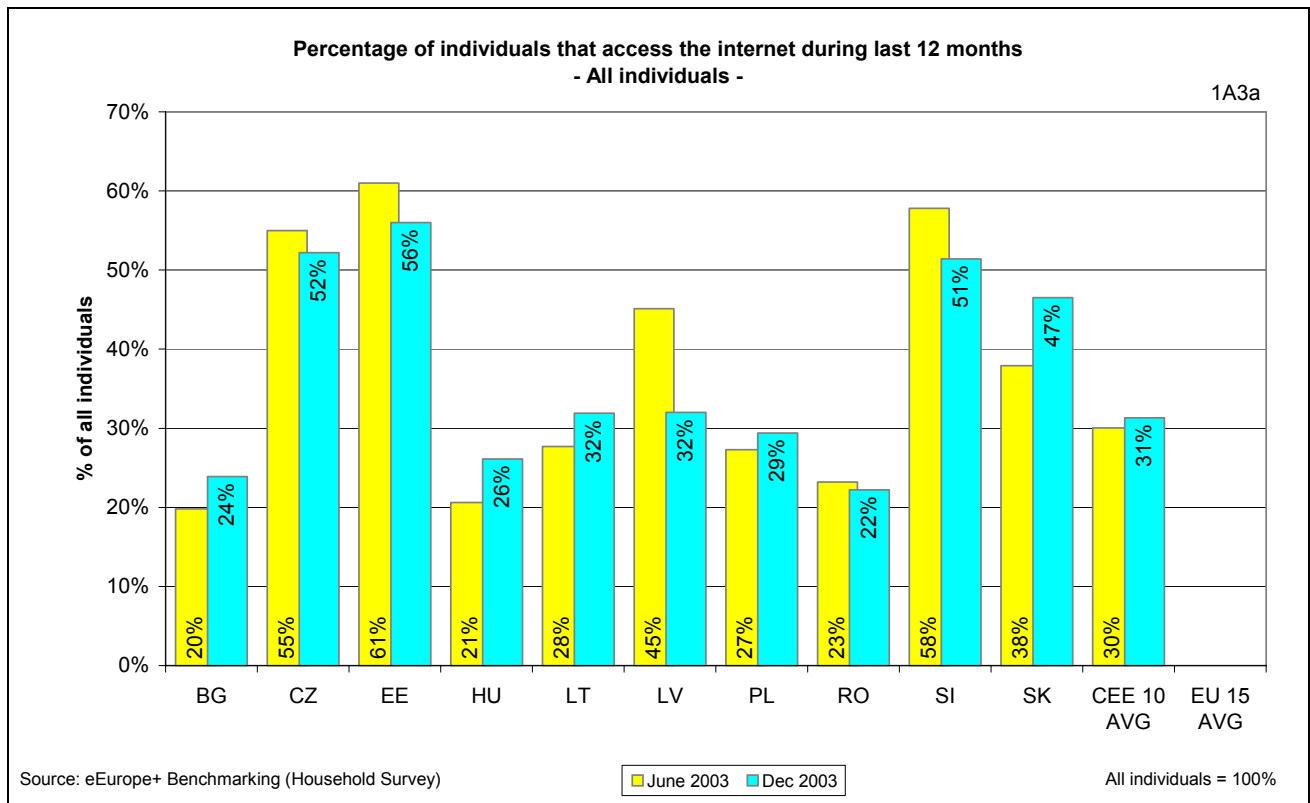[1] eEurope+ 2003: Expert Group Workshop II, held in Warsaw April 2004

[2] Pinter R, April 2003, eEurope+ Workshop for CEE 10 National Experts, Warsaw.

Main reasons for not using the internet
Aggregated Results for the CEE 10

1A2 G

% of individuals not using the internet

	June 2003	December 2003
I don't want Internet		42%
I don't know how to use a computer	41%	32%
I have no access device at home	34%	30%
the content is not useful	22%	6%
computers are too expensive	20%	19%
I don't know exactly what it is	13%	16%
the internet connection is too expensive	13%	13%

Reference Date: June 2003 and Dec 2003   ☐ June 2003 ☐ December 2003

Source: eEurope+ Benchmarking (Household Survey)   Individuals not using the internet = 100%

There are real changes to be seen between June and December 2003. For non-Internet users, there is the risk that questions are not understood and that the respondent does not want to lose face by admitting this. Therefore, answers could be unreliable, especially with "I don't know what it is", or perhaps the respondents now know that they really don't know what it is and feel able to admit it (!), to account for the percentage increases in perception of " I don't know exactly what the Internet is" as in Estonia. The overall percentage decreases in perception of inhibitors related to skills, access and content are encouraging, with Hungary and Lithuania[3] consistently showing well here, suggesting that initiatives to increase Internet penetration are having some effect in these countries. Government driven content in e-Health, e-Education and other public sectors should act as a catalyst in driving the creation of relevant content and raising awareness levels.

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[3] eEurope+ Best Practices Report, Dec 2003, Lithuania: the 'Window to the Future Alliance' (2002), aims to achieve the Internet penetration ratio of the EU over a period of three years.

1.A.3   Percentage of individuals that access the Internet broken down by place of access and by gender

Percentage of individuals that access the internet during last 12 months
- All individuals -

Source: eEurope+ Benchmarking (Household Survey) June 2003 Dec 2003 All individuals = 100%

Four countries have seen a meaningful increase in Internet use during the last twelve months: Bulgaria, Hungary, Lithuania, and the Slovak Republic. A slight increase was noted in Poland. Three countries record a decrease of 5% or more: Estonia (-5%), Latvia (-13%), Slovenia (-7%) but these are the three countries that have experienced the change in the interview methodology (See 1.A.1).

In all countries but Estonia (see graphs on the following page), males currently outnumber females in their use of the Internet with the largest gender gaps in the Czech Republic, Poland, Slovenia[4] and the Slovak Republic where in December 2003, males accessing the Internet outnumbered females by 4%, 5%, 8% and 6% respectively. This suggests that initiatives should be implemented to address this imbalance should this situation continue to develop.

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4   Slovenia Ministry of Information reported that they have not identified this trend in their own data.

Percentage of individuals that access the internet during last 12 months broken down by gender
- Female individuals -

1A3a1

Source: eEurope+ Benchmarking (Household Survey)

June 2003   Dec 2003

All individuals = 100%

Percentage of individuals that access the internet during last 12 months broken down by gender
- Male individuals -

1A3a2

Source: eEurope+ Benchmarking (Household Survey)

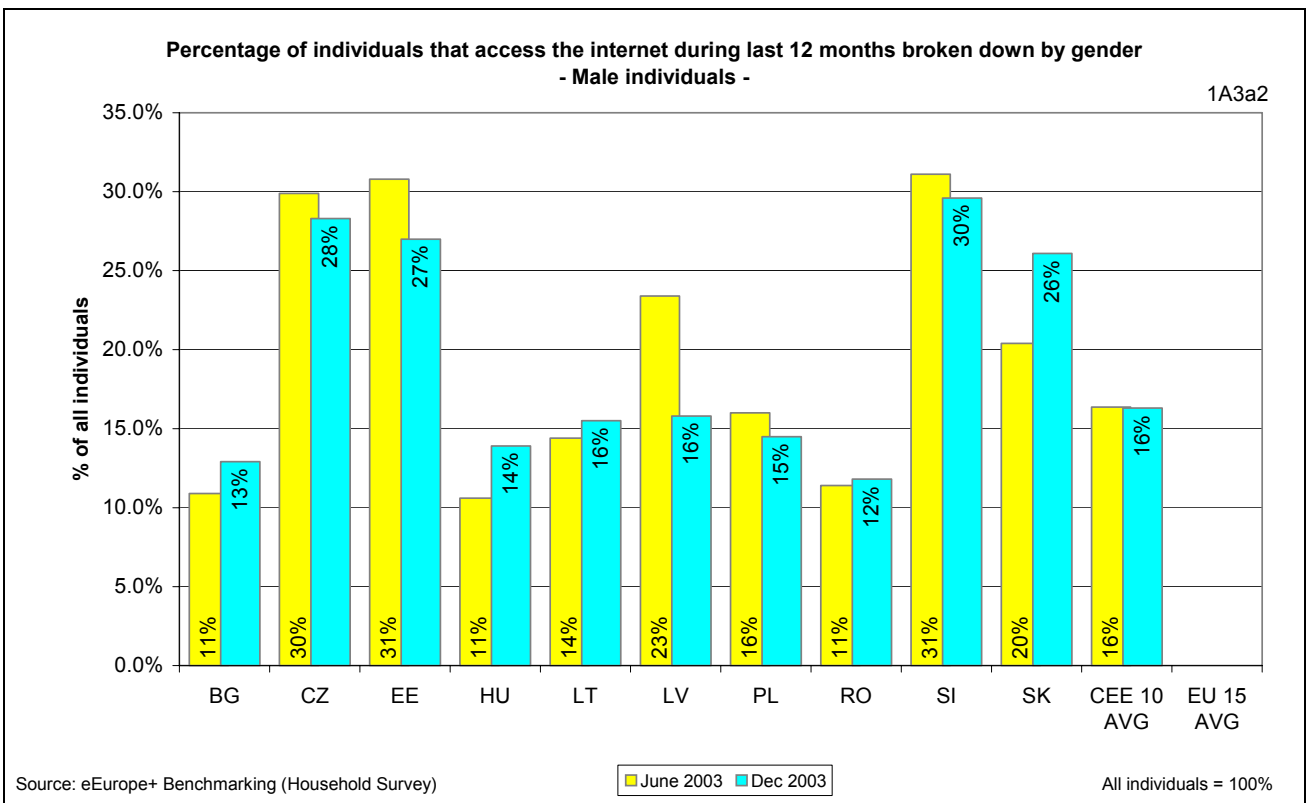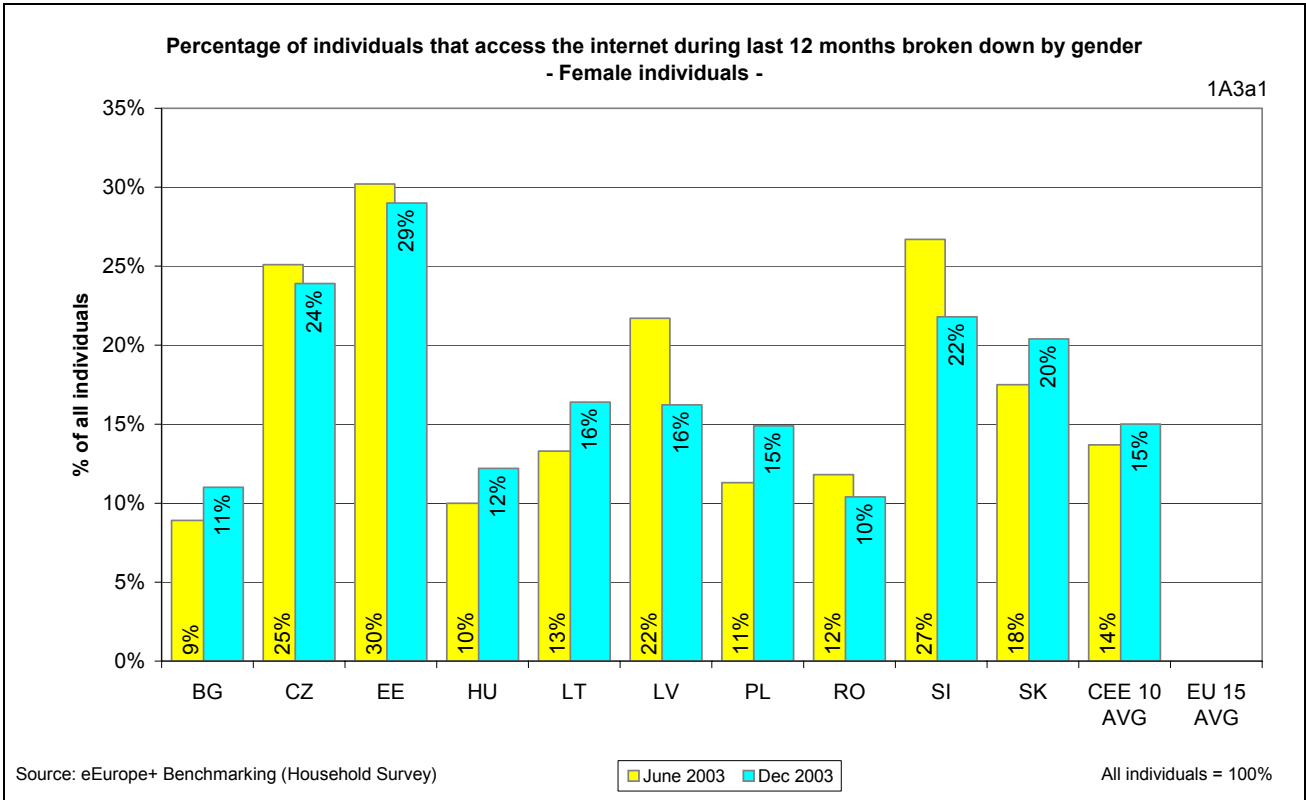June 2003   Dec 2003

All individuals = 100%

Table 1 Percentage use of the five most frequently used places of Internet access by individual Internet users, for each country, December 2003

The home, the workplace and the Internet café are the three most frequently used places of Internet access in CEE 10 countries with increasing use of places of education.

Ranking	Place of Access	Ctry	%	Ctry	%	Ctry	%	Ctry	%	Ctry	%
1st Place	At home	SI	74	CZ	63	EE	59	PL	58	HU	47
	Workplace	LV	51	SK	47	LT	42				
	Internet Café	BG	48	RO	41						
2nd Place	Workplace	CZ	56	SI	48	EE	48				
	Place of Education	PL	40	HU	35	LT	34				
	At home	BG	40	SK	36	RO	34	LV	32		
3rd Place	Workplace	BG	34	RO	33	PL	33	HU	29		
	At home	LT	33								
	NFRH[*]	EE	31								
	Place of Education	LV	31	CZ	25	SI	22				
	Internet Café	SK	27								
4th Place	Internet Café	PL	29	LT	19						
	Place of education	EE	27	SK	26	RO	25	BG	12		
	NFRH[*]	LV	20	CZ	19	SI	13				
	Public library	HU	8								
5th Place	NFRH[*]	PL	29	RO	16	SK	12	LT	11	BG	11
	Internet Café	LV	15	CZ	12						
	Public library	EE	13	SI	12						

*   Neighbour, friend or relative's house

Other possible places of access, including postal office, PIAP other than those already listed, community or voluntary organization and other places were used at very low levels i.e. less than 1%, with the exception of other PIAPs used at 10.4% in Estonia and 2.8% in the Czech Republic (who have the highest number of PIAPS, see 2.C.1).

Table 2 Summary of frequency of access places for CEE 10 December 2003, eEurope+ 2003

	At home	Work place	Place of education	Neighbour, friend or relative's house	Internet café	Public library
1st most frequently chosen place of access	5	3	-	-	2	-
2nd	4	3	3	-	-	-
3rd	1	4	3	1	1	-
4th	-	-	4	3	2	1
5th	-	-	-	6	2	2
Total	10	10	10	10	7	3

Accessing the Internet at home, the workplace, place of education and neighbour, friend or relative's house are the four most frequently used places, in that order of preference. It is interesting to note the importance of the privately owned Internet café in Bulgaria and Romania and that the Internet is not accessed significantly in Internet Cafés in Estonia, Slovenia, and Hungary. In countries with lower access levels, e.g. Hungary and Poland, home access is also the most important place of access, as well as in countries with overall higher levels of access e.g. Estonia Slovenia, and the Czech Republic. In three countries, Lithuania, Latvia, and the Slovak Republic, the workplace is the most important place of access. Compared with the EU 15 countries, accessing at Internet cafés and PIAPs are more important in CEE 10 countries, whereas 'other places of access' are more important in EU 15 countries. If the use of other people's homes is included then home access is clearly most important.

An increase in the frequency of access to the Internet between June and December 2003, is particularly seen at places of education, suggesting that initiatives to use schools as citizen-centric Internet training centres are being effective in increasing Internet usage amongst individuals.
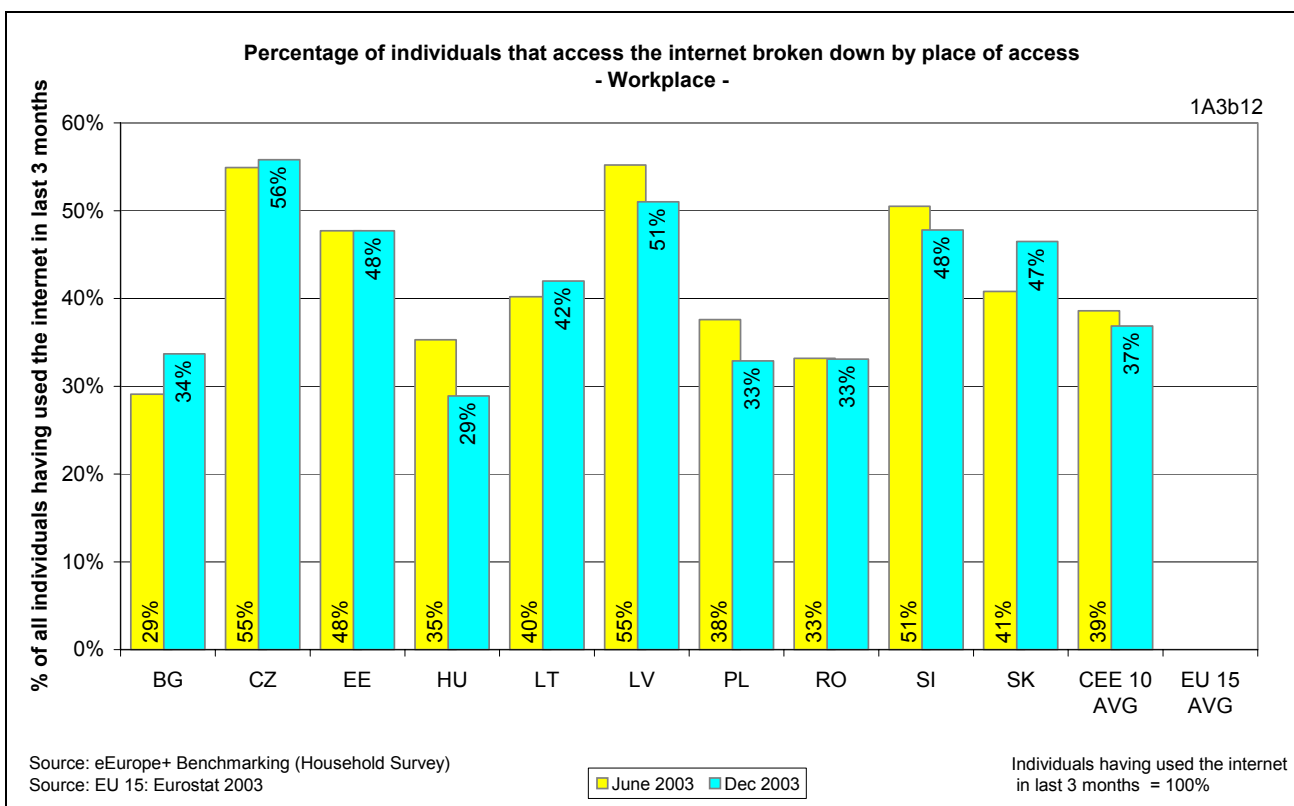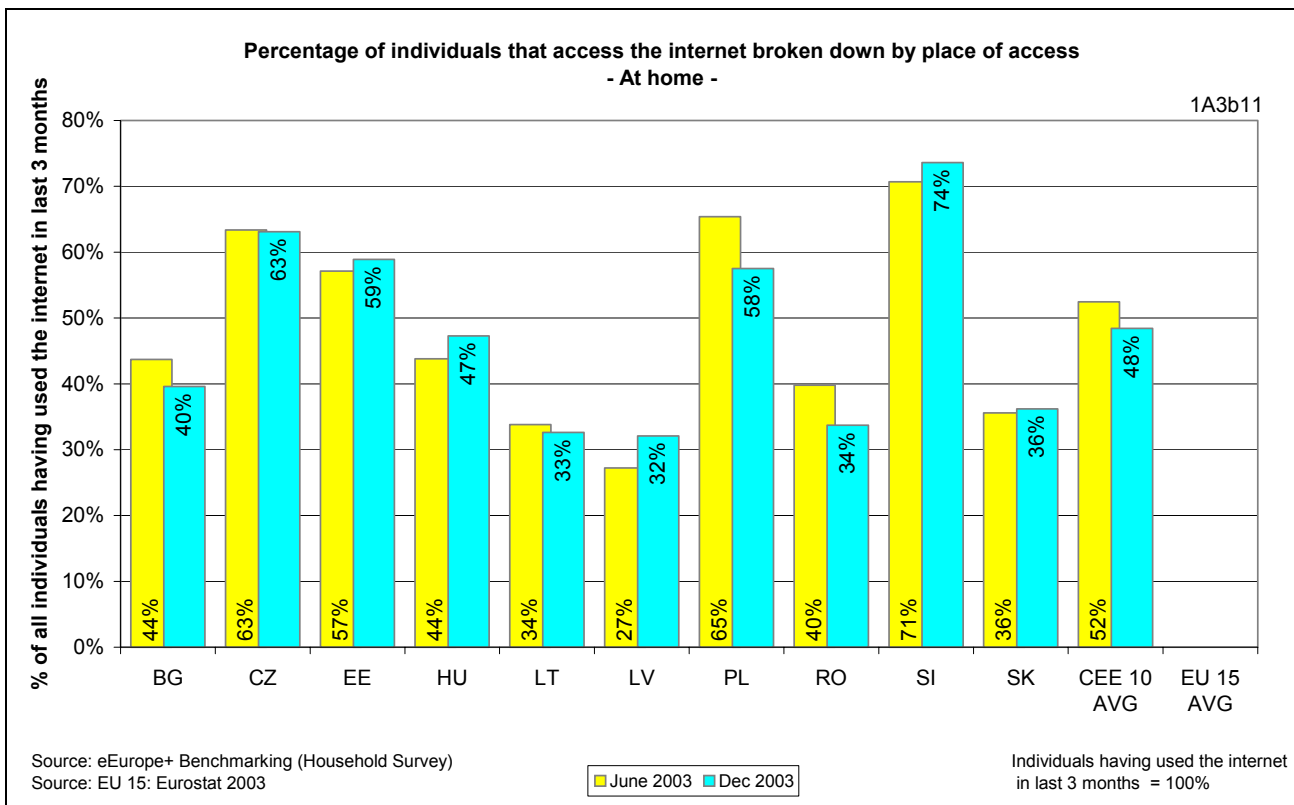
With Internet cafés already the most popular means of access in Bulgaria and strongly suggesting that alternative private and public Internet access is not available. Romania is achieving similar levels of penetration. Clearly, private commercial initiatives are currently satisfying demand for Internet access in these countries. It would be expected that lower levels of Internet access at home or at work would increase usage elsewhere. Since use of the Internet for 'communication and leisure' is the most important category of Internet usage among CEE 10 countries (see 1.A.4), then Internet cafés, with their relative lack of privacy, possible proximity to workplaces and additional social attractions can currently satisfy user requirements.
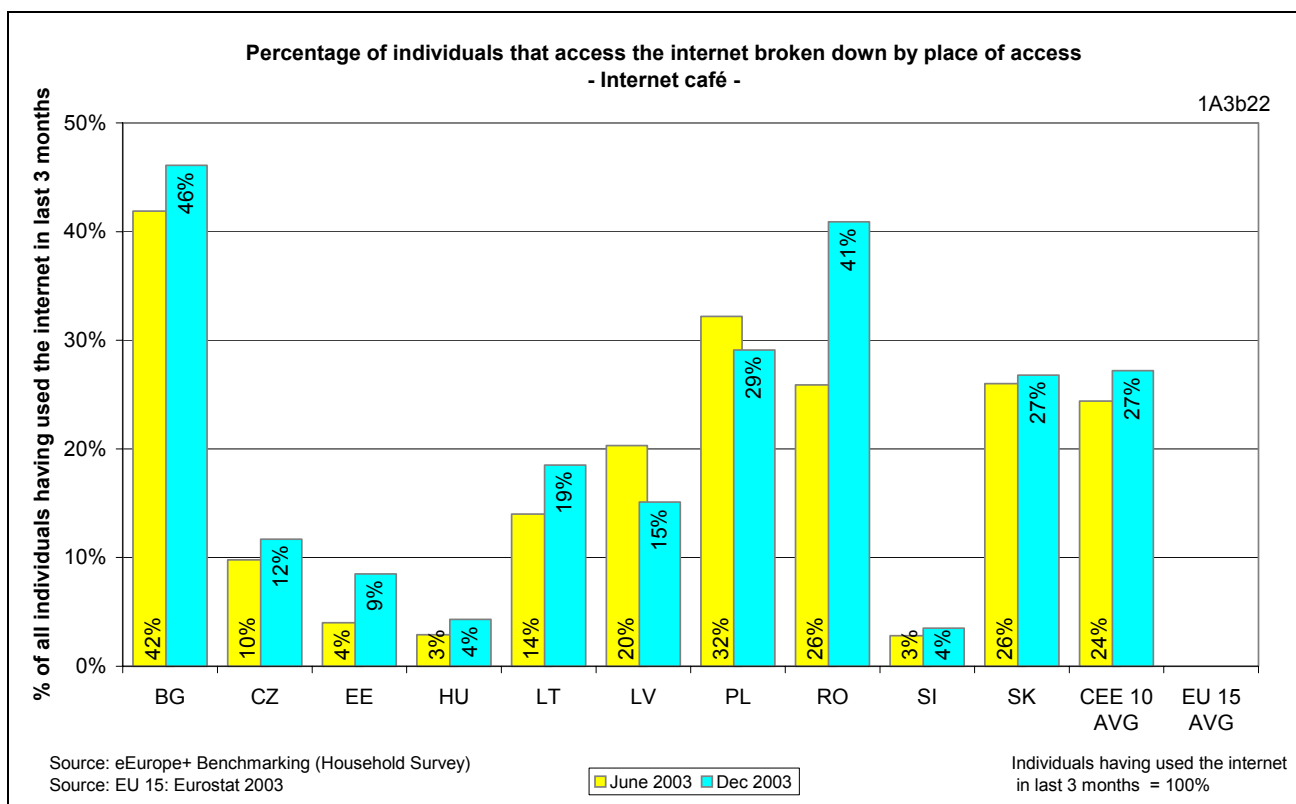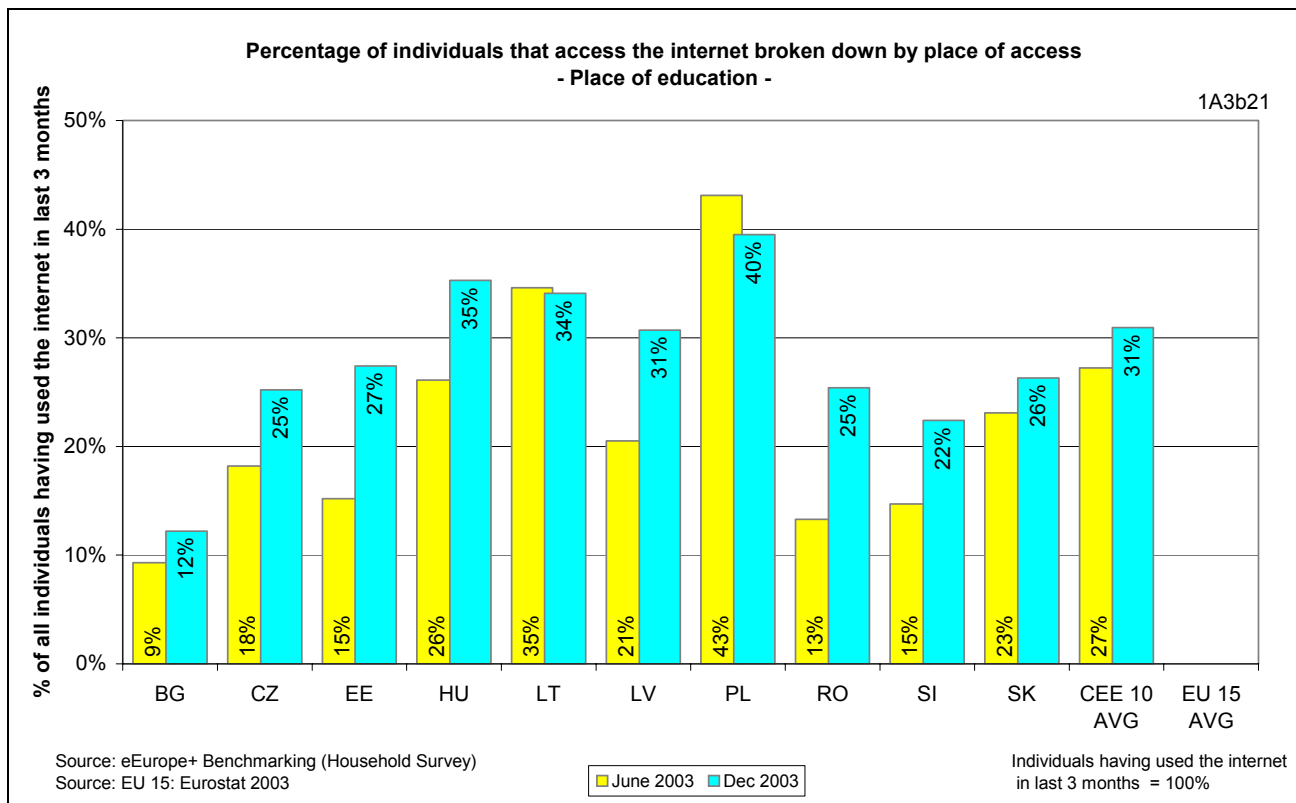
Relative importance of places of access:

Home: important in Slovenia, the Czech Republic, Estonia, and Poland.
Workplace: important in the Czech Republic, Latvia, Estonia, and Slovenia.
Place of education: important in Poland, Hungary, Lithuania, and Latvia.
Public library: important in Estonia, Slovenia, the Czech Republic, and Hungary.
Internet café: important in Bulgaria, Romania, the Slovak Republic, and Lithuania.
Other PIAP: important in Estonia, Latvia, Poland, and the Czech Republic.
Neighbour, friend or relative's house: important in Estonia, Poland, Latvia, and the Czech Republic.

Percentage of population: comparison of place of Internet access EU 15 and CEE 10,		
Place of Internet access	EU 15, 2003[5]	CEE 10, Dec 2003
Home	36%	15%
Workplace	19%	13%
Place of education	7%	8%

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[5] Eurostat 2003

Percentage of individuals that access the internet broken down by place of access
- At home -

1A3b11

Source: eEurope+ Benchmarking (Household Survey)
Source: EU 15: Eurostat 2003

June 2003 Dec 2003

Individuals having used the internet
in last 3 months = 100%

Percentage of individuals that access the internet broken down by place of access
- Workplace -

1A3b12

Source: eEurope+ Benchmarking (Household Survey)
Source: EU 15: Eurostat 2003

June 2003 Dec 2003

Individuals having used the internet
in last 3 months = 100%

Percentage of individuals that access the internet broken down by place of access
- Place of education -

1A3b21

% of all individuals having used the internet in last 3 months

Country	June 2003	Dec 2003
BG	9%	12%
CZ	18%	25%
EE	15%	27%
HU	26%	35%
LT	35%	34%
LV	21%	31%
PL	43%	40%
RO	13%	25%
SI	15%	22%
SK	23%	26%
CEE 10 AVG	27%	31%
EU 15 AVG		

Source: eEurope+ Benchmarking (Household Survey)
Source: EU 15: Eurostat 2003

☐ June 2003 ☐ Dec 2003

Individuals having used the internet
in last 3 months = 100%

Percentage of individuals that access the internet broken down by place of access
- Internet café -

1A3b22

% of all individuals having used the internet in last 3 months

Country	June 2003	Dec 2003
BG	42%	46%
CZ	10%	12%
EE	4%	9%
HU	3%	4%
LT	14%	19%
LV	20%	15%
PL	32%	29%
RO	26%	41%
SI	3%	4%
SK	26%	27%
CEE 10 AVG	24%	27%
EU 15 AVG		

Source: eEurope+ Benchmarking (Household Survey)
Source: EU 15: Eurostat 2003

☐ June 2003 ☐ Dec 2003

Individuals having used the internet
in last 3 months = 100%

1.A.4   Percentage of individuals using the Internet for specific purposes.

Definition: sending/receiving emails (both employment related and non-employment related), finding information about goods and services, reading/downloading online newspapers, playing/downloading games and music, Internet banking, ordering/purchasing goods or services in the previous 3 months, downloading, completing and returning official forms.

General information search, e-mailing, reading online newspapers and playing games and music are the most popular online activities among CEE 10 countries.

When considering the specific purposes of Internet use, it is important to bear in mind the percentages of the population of CEE 10 who regularly use the Internet at least once a week during the last 3 months (1.A.1), that these figures vary from 13% for Romania to 42% for Slovenia. Twenty-one possible choices of personal Internet use were offered to respondents. These have been categorised into three groups: communication and leisure, personal e-commerce and e-government.
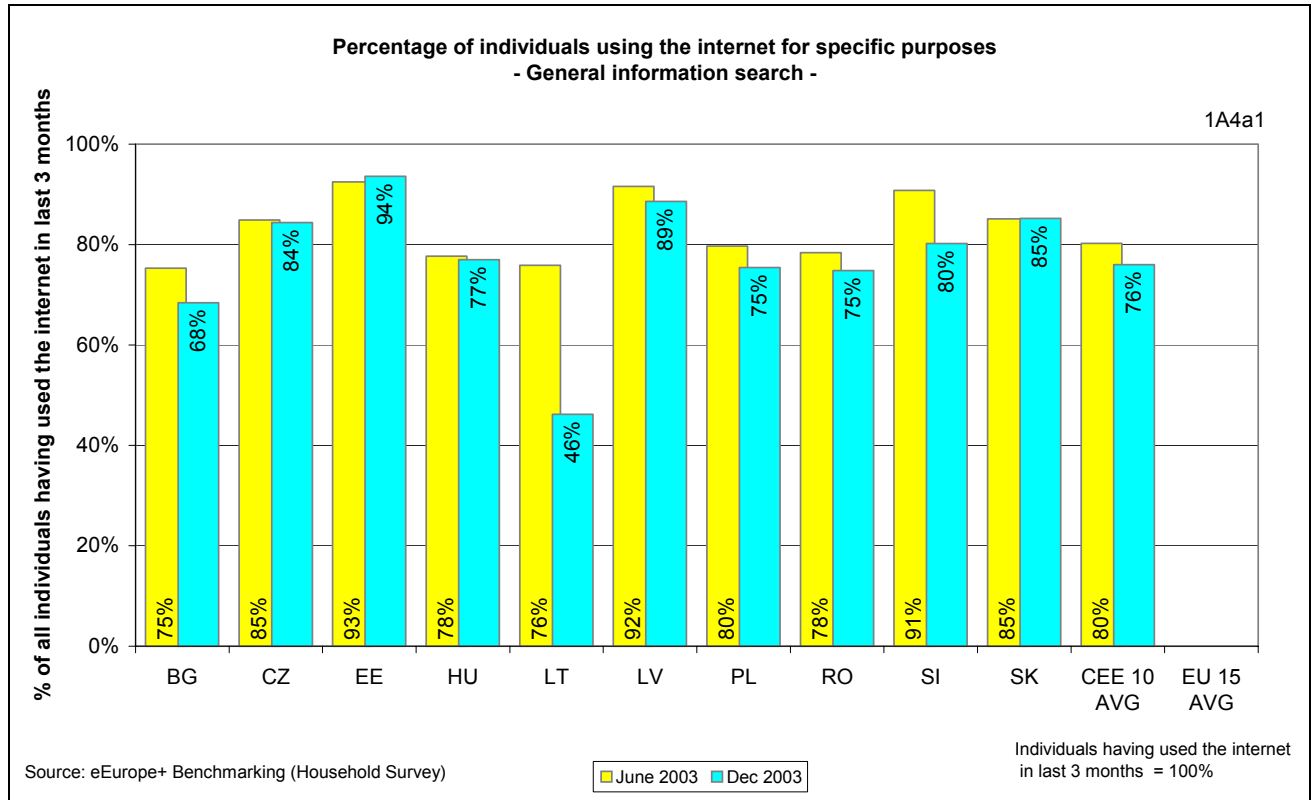
Personal Internet use: communication and leisure

Table 3 Frequency of Internet Use - communication and leisure December 2003 (all individual Internet Users CEE 10), eEurope+ 2003.
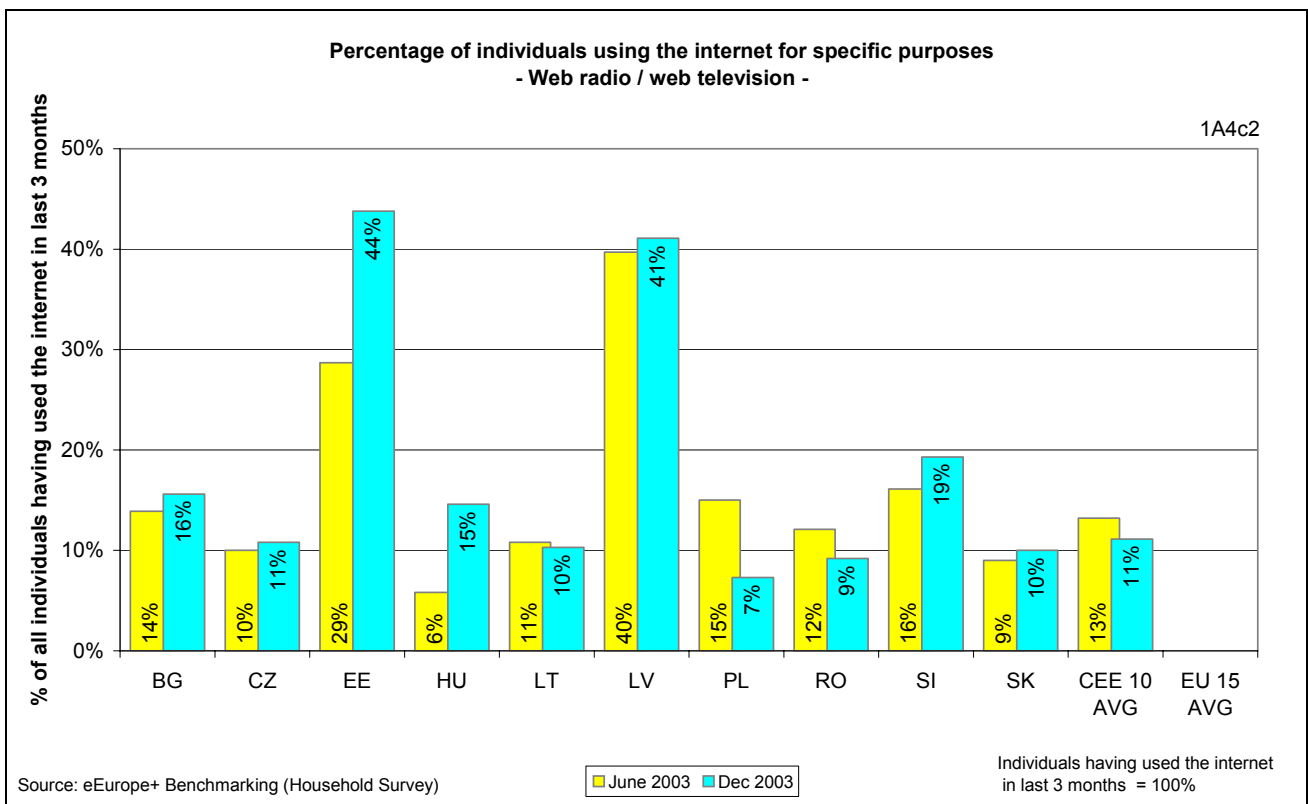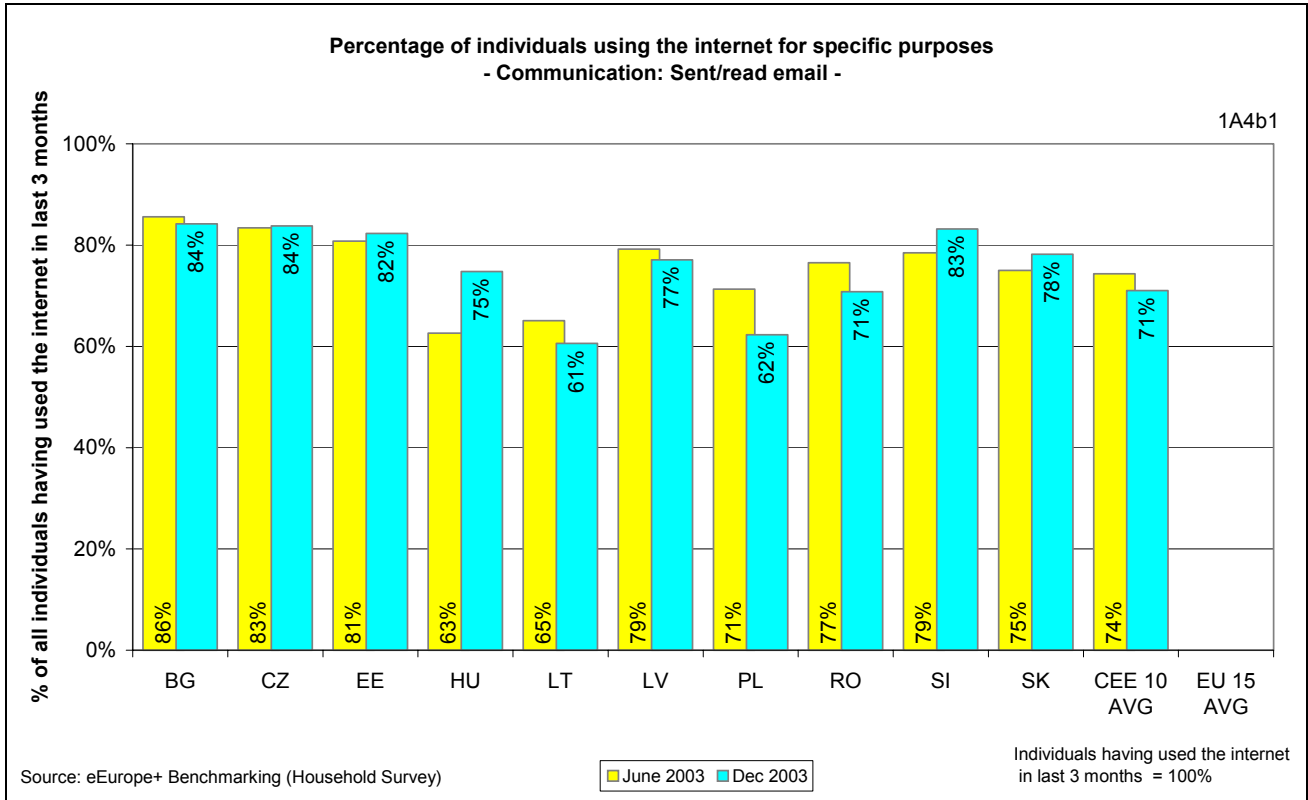
1st Use	General Info Search	EE (94%)	LV (89%)	SK (85%)	tCZ (84%)	HU (77%)	RO (75%)	PL (75%)
	e-Mail	BG (84%)	SI (83%)	LT (61%)				
2nd Use	e-Mail	CZ (84%)	EE (82%)	SK (78%)	LV (77%)	HU (75%)	RO (71%)	PL (62%)
	General Info Search	SI (80%)	BG (68%)	LT (46%)				
3rd Use	Online newspapers	EE (73%)	LV (56%)	PL (35%)	CZ (32%)	LT (26%)		
	Games and Music	BG (49%)	RO (41%)	HU (37%)	SI (34%)	SK (26%)		
4th Use	Games and Music	EE (56%)	LV (55%)	PL (29%)	CZ (26%)	LT (25%)		
	Online newspapers	HU (34%)	SI (25%)	SK (24%)	BG (22%)	RO (22%)		
5th Use	Web Radio/TV	EE (44%)	LV (41%)	SI (19%)	BG (16%)	HU (15%)	CZ (11%)	LT (10%)
	Phone calls	RO (16%)						
6th Use	Phone calls	HU (11%)	EE (10%)	BG (10%)	CZ (9%)	SI (8%)	LV (7%)	SK (4%)
	Web Radio/TV	RO (9%)						

Table 3 not only shows the countries with the highest levels of usage i.e. the Czech Republic, Estonia, and Slovenia, but also shows that general information search, e-mailing, reading online newspapers and playing games and music are the most popular online activities, with e-mailing and searching for general information as the first and second most popular activities amongst all CEE 10. There are contrasting levels of e-mail use from (82%), (83%), and (84%) in Estonia, Slovenia

and the Czech Republic to (61%) and (62%) in Lithuania and Poland. Estonia is the leader for users carrying out general information searches (94%) and Lithuania (46%). The use of web radio and web television are popular in Estonia and Lithuania. Use of Internet web radio and Internet telephone calls have not been analysed further due to low levels of use.

These are the activities of early adopters and as such are useful in the gaining of experience online, so any increase in these social activities represents a positive step. The development of relevant content is also significant in stimulating the growth of the ICT economy.

Percentage of individuals using the internet for specific purposes
- General information search -

Source: eEurope+ Benchmarking (Household Survey)

June 2003   Dec 2003

Individuals having used the internet in last 3 months = 100%

Percentage of individuals using the internet for specific purposes
- Communication: Sent/read email -

1A4b1

Source: eEurope+ Benchmarking (Household Survey)

June 2003　Dec 2003

Individuals having used the internet
in last 3 months = 100%

Percentage of individuals using the internet for specific purposes
- Web radio / web television -

1A4c2

Source: eEurope+ Benchmarking (Household Survey)

June 2003　Dec 2003

Individuals having used the internet
in last 3 months = 100%

Personal Internet use: e-commerce

Definition: searching for goods and services, using services for travel and accommodation, Internet banking, purchasing goods and services, other financial services and selling goods and services

during the previous three months.

Using the Internet for buying and selling goods and services are not popular activities for individuals in CEE 10 countries

Table 4 Frequency of use of Internet for individual e-commerce, December 2003, eEurope+ 2003
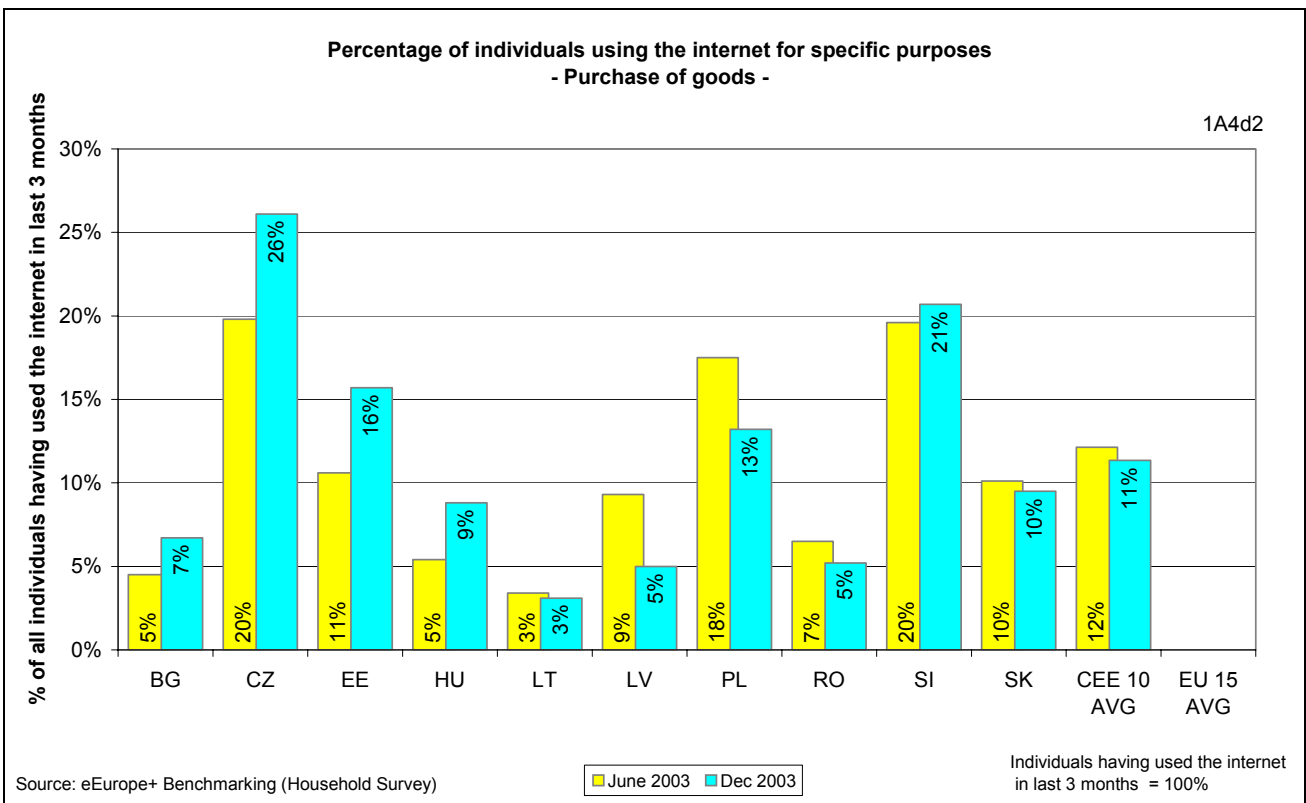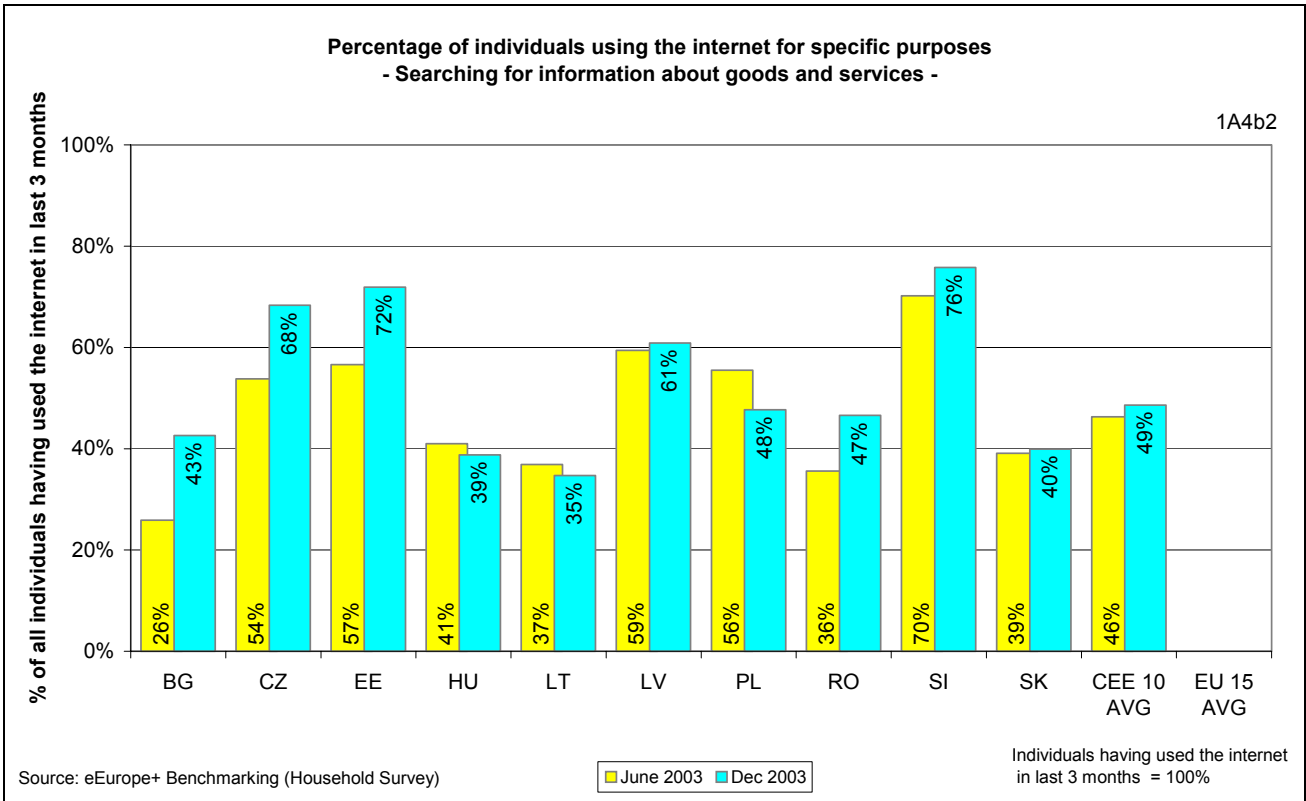
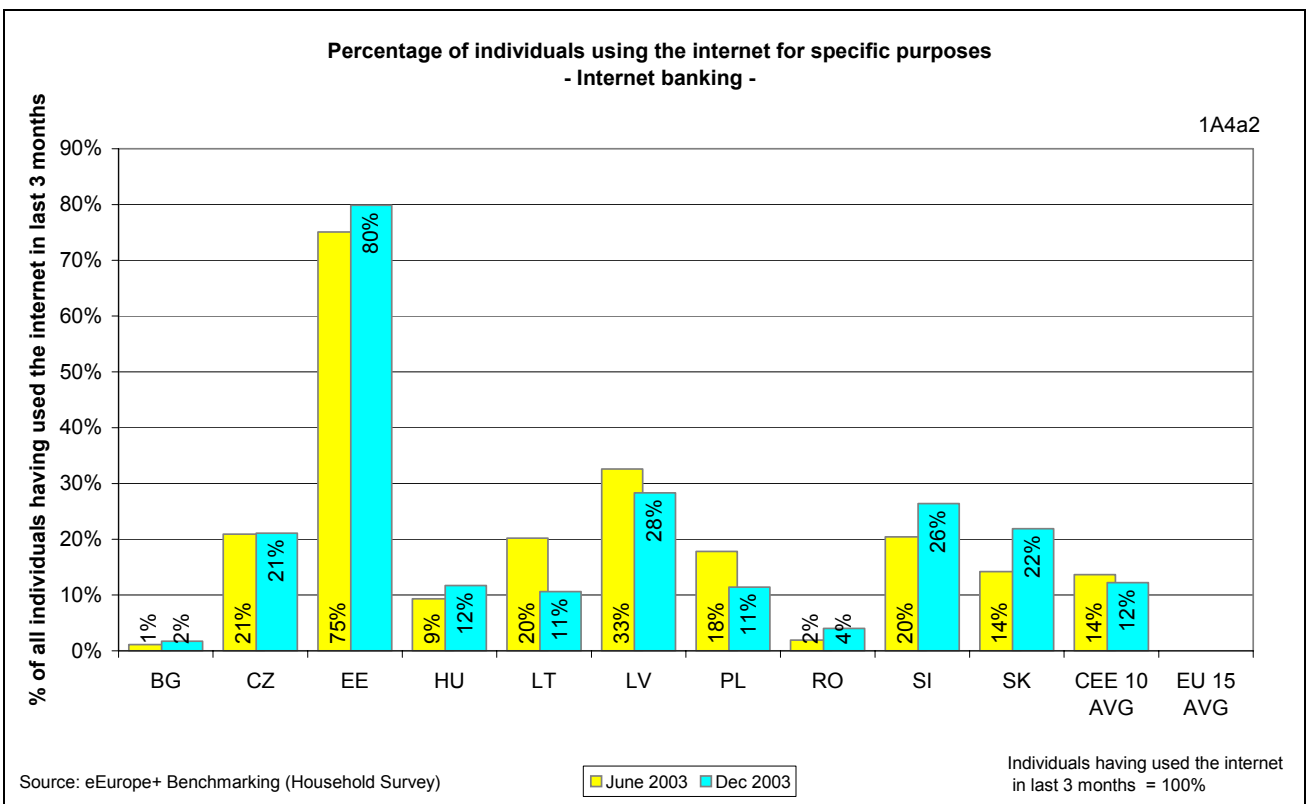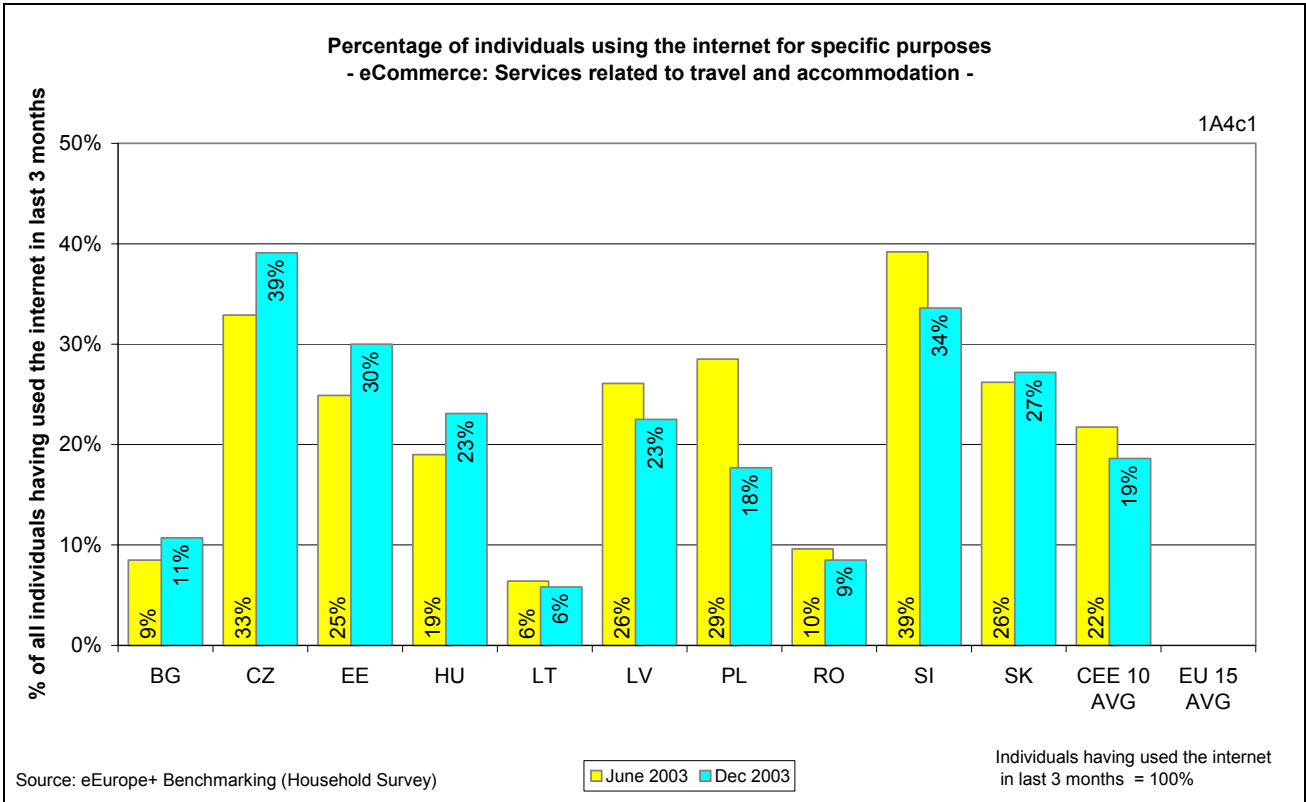| Frequency of use of Internet	Search for goods/ services	Used services for travel /accommodation	Internet banking	Purchase goods/ services	Other financial services	Sold goods/ services
1st (most important	9	-	1	-	-	-
2nd	1	7	2	-	-	-
3rd	-	3	4	3	-	-
4th	-	-	2	6	1	1
5th	-	-	-	1	4	5
6th (less important)	-	-	1	-	5	4

Searching for information about goods and services is the most important e-commerce activity for individuals but actual purchasing online is less popular. Services related to travel and tourism are the next most popular activity. These sectors have been very effective in marketing and selling their services online for some time in North America and Western Europe but with more limited opportunities for travel and tourism in CEE 10, they could be expected to be not so important at this stage. Nevertheless, they are accessed by 19% of the Czech Republic Internet population, 15% of the Estonia Internet population and 16% of the Slovak Republic Internet population. About one quarter of the Czech Republic regular Internet users are purchasing online and one fifth of Slovenia regular Internet users. All other countries lie at lower levels than Estonia (16%) with very low levels of activity in Latvia, Romania, and Lithuania. It is possible that the online pre-purchasing activity is leading to traditional offline purchasing activity. Selling goods and services online is taking place at low levels of activity, for example, Estonia (8%) and Poland (7%), and all other countries at levels of 5% or less, so very small numbers of the population are involved. The success of online auctions for individuals has yet to be adopted in these countries, for the same reasons that hold back online purchasing.
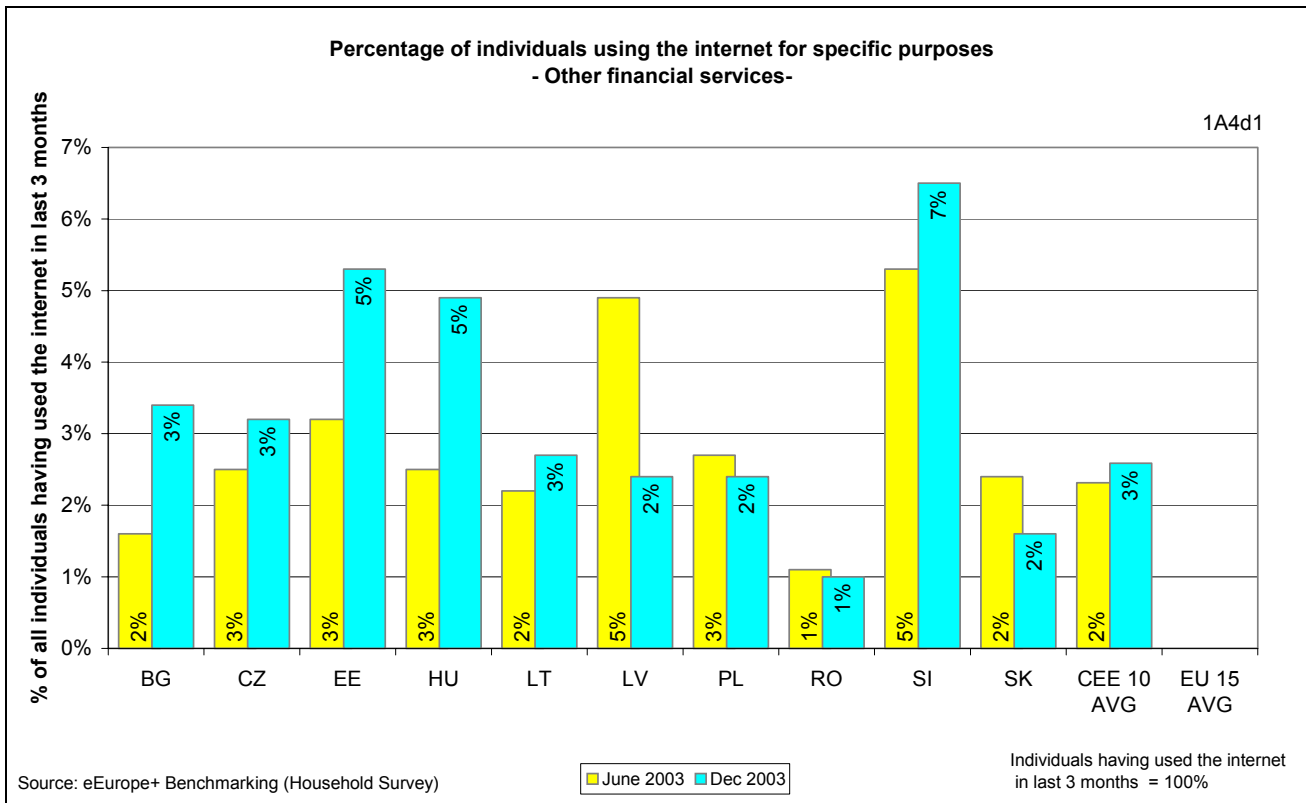
Internet banking: varies more widely in its importance but Estonia is clearly the leader at 80%, followed by a cluster of other CEE 10 - Latvia (28%), Slovenia (27%), and the Slovak Republic. There is clearly national variation in the development and use of Internet banking/financial services and almost certainly related to historic issues concerning banking practices amongst individuals, issues of trust and numbers of customers with bank accounts. The influence of neighbouring Scandinavian countries can be seen here. There is no correlation between the use of Internet banking and online purchasing, so experience and trust developed by online banking is not important in supporting online purchasing.

The issues which lead to confident online purchasing and selling are complex. In many CEE 10 countries with incomplete implementation of consumer protection law, poor logistics networks and also lower personal incomes, people will be wary of these online activities for some while. It has been suggested that for small countries like Estonia, markets are geographically convenient, hence the lack of population having ordered online but the UK, with 24% of its population having ordered online during 2003[6], leads for B2C for the EU 25 and is also a country with dense networks of traditional retail outlets. However, a strengthening of consumer protection laws and given the success of Internet Banking in Estonia this could be emulated across the CEE 10.
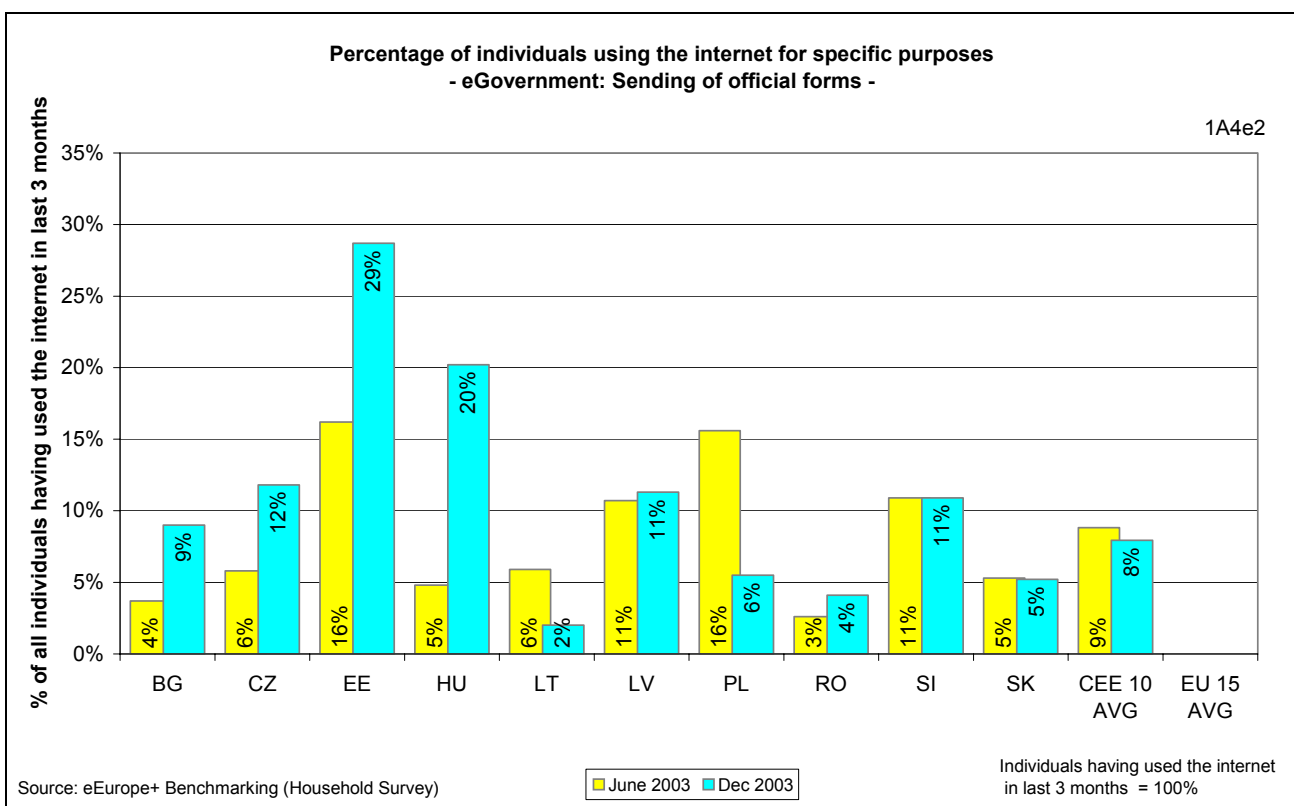
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[6] Eurostat 2003

**Percentage of individuals using the internet for specific purposes
- Searching for information about goods and services -**

1A4b2

Source: eEurope+ Benchmarking (Household Survey)

June 2003   Dec 2003

Individuals having used the internet
in last 3 months = 100%

**Percentage of individuals using the internet for specific purposes
- Purchase of goods -**

1A4d2

Source: eEurope+ Benchmarking (Household Survey)

June 2003   Dec 2003

Individuals having used the internet
in last 3 months = 100%

**Percentage of individuals using the internet for specific purposes
- eCommerce: Services related to travel and accommodation -**

1A4c1

% of all individuals having used the internet in last 3 months

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	CEE 10 AVG	EU 15 AVG
June 2003	9%	33%	25%	19%	6%	26%	29%	10%	39%	26%	22%	
Dec 2003	11%	39%	30%	23%	6%	23%	18%	9%	34%	27%	19%	

Source: eEurope+ Benchmarking (Household Survey)

☐ June 2003 ☐ Dec 2003

Individuals having used the internet in last 3 months = 100%

**Percentage of individuals using the internet for specific purposes
- Internet banking -**

1A4a2

% of all individuals having used the internet in last 3 months

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	CEE 10 AVG	EU 15 AVG
June 2003	1%	21%	75%	9%	20%	33%	18%	2%	20%	14%	14%	
Dec 2003	2%	21%	80%	12%	11%	28%	11%	4%	26%	22%	12%	

Source: eEurope+ Benchmarking (Household Survey)

☐ June 2003 ☐ Dec 2003

Individuals having used the internet in last 3 months = 100%

**Percentage of individuals using the internet for specific purposes
- Other financial services-**

1A4d1

Source: eEurope+ Benchmarking (Household Survey)

June 2003   Dec 2003

Individuals having used the internet
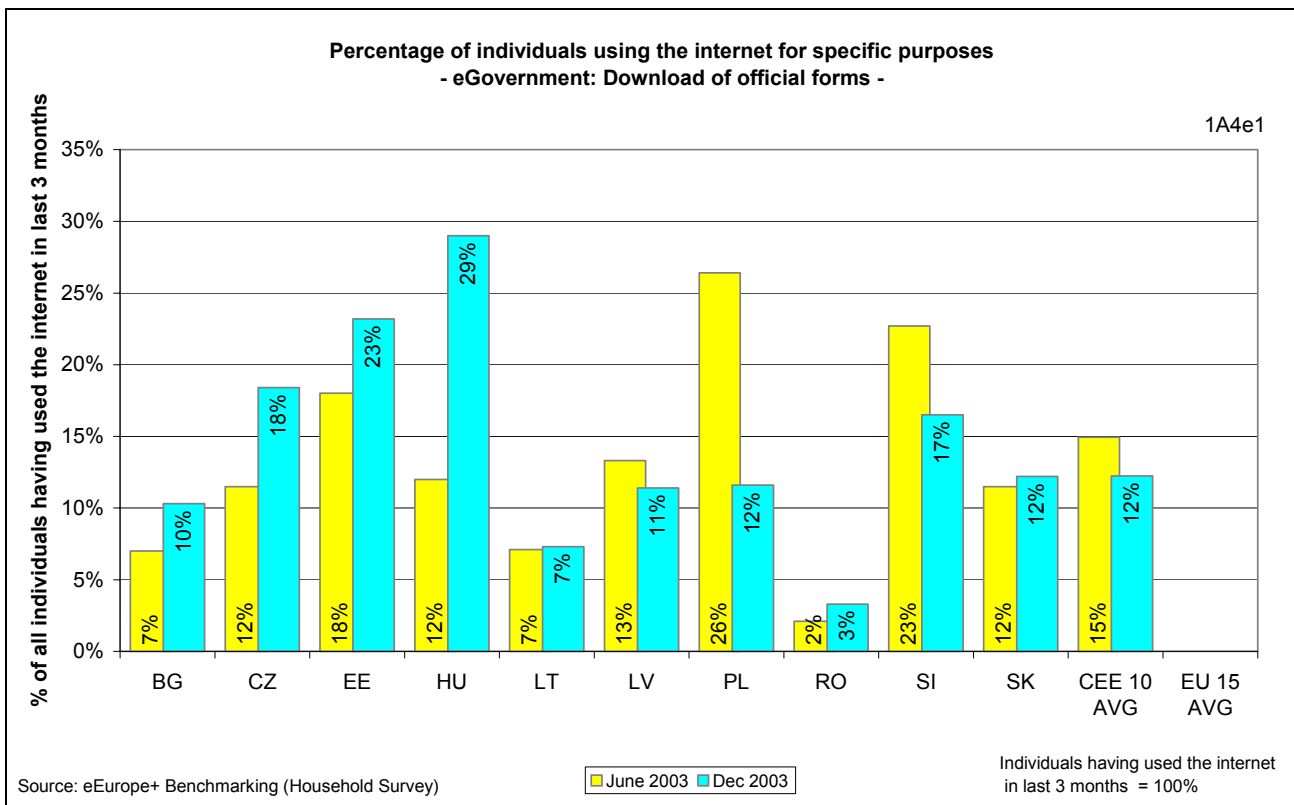in last 3 months = 100%

Definition: obtaining information from public authorities' websites, downloading official forms, returning official forms.

More than half of Estonian Internet users obtain official information online and almost one third are completing and returning official forms online; Bulgaria, the Czech Republic, Estonia and Hungary have made considerable progress during 2003 with other CEE 10 stagnating.

Estonia (61% of Internet users), is the outstanding leader for individuals obtaining official information online followed by Latvia (47%), the Czech Republic (38%), the Slovak Republic (36%) and Slovenia (32%); this is the most popular e-Government activity. Regarding the downloading of official forms, Hungary and Estonia lead at 29% and 23% respectively followed by the Czech Republic (18%), Slovenia (17%), with Lithuania and Romania trailing at 7% and 3% respectively. With respect to sending completed forms online, Estonia is the leader at 29%, followed by Hungary (20%), the Czech Republic (12%), Slovenia and Latvia (11%) and Romania and Lithuania trailing at 4% and 2%. In many cases, it is possible that forms can be downloaded and printed off, completed and mailed traditionally. The sending of information online could include the completion of forms online without the necessity of downloading. Bulgaria, the Czech Republic, Estonia, and Hungary have at least doubled the numbers of individuals returning official forms. One fifth of Internet users in Hungary are now returning official forms online, although it must be remembered that numbers of regular Internet users are low (17%). Importantly, for these countries, some e-Government content is in place and as Internet penetration levels increase, then use of e-Government should start to impact positively.

Percentage of individuals using the internet for specific purposes
- eGovernment: Download of official forms -

1A4e1

% of all individuals having used the internet in last 3 months

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	CEE 10 AVG	EU 15 AVG
June 2003	7%	12%	18%	12%	7%	13%	26%	2%	23%	12%	15%	
Dec 2003	10%	18%	23%	29%	7%	11%	12%	3%	17%	12%	12%	

Source: eEurope+ Benchmarking (Household Survey)

■ June 2003 ■ Dec 2003

Individuals having used the internet
in last 3 months = 100%

Percentage of individuals using the internet for specific purposes
- eGovernment: Sending of official forms -

1A4e2

% of all individuals having used the internet in last 3 months

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	CEE 10 AVG	EU 15 AVG
June 2003	4%	6%	16%	5%	6%	11%	16%	3%	11%	5%	9%	
Dec 2003	9%	12%	29%	20%	2%	11%	6%	4%	11%	5%	8%	

Source: eEurope+ Benchmarking (Household Survey)

■ June 2003 ■ Dec 2003

Individuals having used the internet
in last 3 months = 100%

1.A.5 Percentage of individuals having used the Internet for training and educational purposes

E-Learning is most popular in the Czech Republic, Estonia, Hungary and Slovenia with other CEE 10 countries at early stages of e-Learning activity.

Estonia, Hungary and Slovenia are emerging as leaders, showing the highest frequency of participation in online lectures with Slovenia and Hungary leading for participation in online education courses (among regular Internet users). When considered for the population as a whole, then the Czech Republic also appears as an emerging leader. Hungary shows increased levels of participation during 2003. With EU 15 averages of 10%, these countries are well positioned.

e-Learning is intrinsically linked to Information Societies and closely allied to the concept of Lifelong Learning.[7] By 2010, the EU average level of participation in Lifelong Learning should be at lest 15% of the adult working age population in the 25-64 age group and should not be lower than 10% in any country. Since e-Learning is one of the most effective ways of allowing access to flexible personal programmes of tuition, measurement of participation is indicative of the extent to which individuals in a population are engaged in Lifelong Learning.

Levels of e-Learning activity related to employment are currently at a very low level (5% or less among regular Internet users) and probably due to low levels of Internet penetration within enterprises and/or lack of content, for access elsewhere. As e-Learning is currently at the early stages of activity, its development will need careful monitoring. E-Learning content should be prepared in order to satisfy demand in these countries (where education traditionally has a high profile), as and when Internet penetration and broadband access levels increase. In many countries, the critical mass of Internet users does not exist and therefore the demand for e-Learning is low.

Some countries e.g. Romania, are effectively promoting the ECDL[8] as a qualification for ICT users and this could be further developed as a useful means of increasing digital literacy among the workforce. Enterprises could be targeting for skills training as their computer and Internet penetration levels increase. This could be targeted by local Chambers of Commerce or their equivalent.

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[7] '….e-Learning is the use of multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as remote exchanges and collaboration'; the e-Learning Action Plan: Designing tomorrow's education, 2001
[8] European Computer Driving License

Table 6 Frequency of use of E- learning (all individual Internet Users CEE 10), December 2003, eEurope+

Country	1st use (most frequent)	%	2nd use	%	3rd use	%	4th use (less frequent)	%
BG	Participated in other online courses related to new employment opportunities	4.5	Participate in online lectures	4.4	Participate in online courses specifically related to new employment	1.9	Participate in online courses	1.1
CZ	Participate in online lectures	5.6	Participate in online courses specifically related to new employment	5.4	Participate in online courses	2.9	Participated in other online courses related to new employment opportunities	2.1
EE	Participate in online lectures	7.3	Participate in online courses specifically related to new employment	4.3	Participate in online courses	4.1	Participated in other online courses related to new employment opportunities	3.5
HU	Participate in online lectures	7.4	Participate in online courses	7.3	Participate in online courses specifically related to new employment	4.7	Participated in other online courses related to new employment opportunities	2.6
LT	Participate in online lectures	2.7	Participate in online courses specifically related to new employment	0.5		0		0
LV	Participate in online lectures	5.1	Participate in online courses specifically related to new employment	4.8	Participated in other online courses related to new employment opportunities	3.7	Participate in online courses	1.8
PL	Participate in online lectures	3.4	Participate in online courses	2.1	Participate in online courses specifically related to new employment	1.7	Participated in other online courses related to new employment opportunities	1.6
RO	Participate in online courses specifically related to new employment	5.0	Participate in online lectures	4.1	Participated in other online courses related to new employment opportunities	3.4	Participate in online courses	3.3
SI	Participate in online lectures	12.3	Participate in online courses	8.3	Participate in online courses specifically related to new employment	3.4	Participated in other online courses related to new employment opportunities	2.4
SK	Participate in online lectures	4.8	Participated in other online courses related to new employment opportunities	1.5	Participate in online courses	0.7	Participate in online courses specifically related to new employment	0.4

**Percentage of individuals having used the internet for training and educational purposes
- Participation in online courses -**

1A51

Source: eEurope+ Benchmarking (Household Survey)   ☐ June 2003 ☐ Dec 2003

Individuals having used the internet
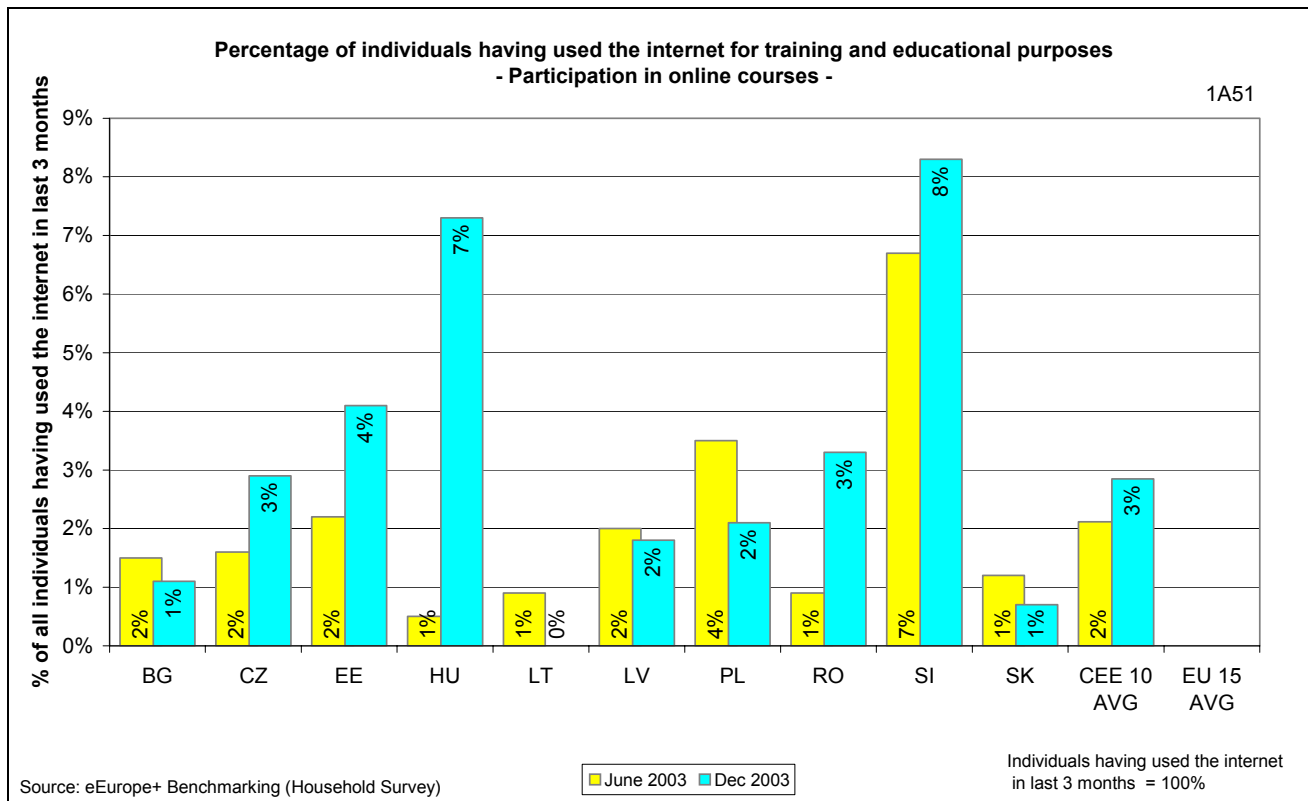in last 3 months = 100%

Table 7 Personal Internet use: comparison of CEE 10 and EU 15 among population as whole 2003 (weighted averages, regular Internet users during last three months)

Indicator	EU 15 average (Eurostat 2003)	CEE 10 average (Dec 2003 eEurope+)
Sent/received e-mails	42%	24%
Downloaded games/music	15%	12%
Downloaded online newspapers/news magazines	18%	11%
Found information about goods/services	41%	17%
Ordered goods/services	14%	4%
Used banking/financial services	19%	9%
Used formal educational services	11%	2%
Used other educational courses related to employment	10%	1%
Used post-educational courses	10%	1%
Downloaded official forms	10%	5%
Obtained information form public authority website	21%	10%
Returned official forms	6%	4%

This table shows that the CEE 10 are lagging overall but conceals the higher levels of use among some CEE 10 countries, as mentioned in the previous text. Similarly, it also conceals the wide range of performance among the EU 15 countries, some of which have levels of personal Internet use at levels below the best CEE 10 countries.

1.A.6   Internet access costs

Although the cost of accessing the Internet was identified as being one of the indicators in the eEurope+ Action Plan it became apparent during the benchmarking activities that other surveys were dealing with the same topic.

In addition, the specification of an indicator that can accommodate the wide range of prices and different services offered by the telecommunications operators and Internet Service Providers in a manner that ensures comparability across all countries is difficult to achieve.

At the end of the benchmarking activities, it was agreed with the European Commission that the results obtained would not be included in this report as they could be subject to misinterpretation.

Instead, the reader is invited to consult the 'IBM Monitoring Reports' to be found at the following address:

http://europa.eu.int/information_society/topics/ecomm/doc/all_about/international_aspects/eu_enlargement/4th_report_final.pdf

The eEurope+ Household Survey did obtain information on household spending on Internet access.
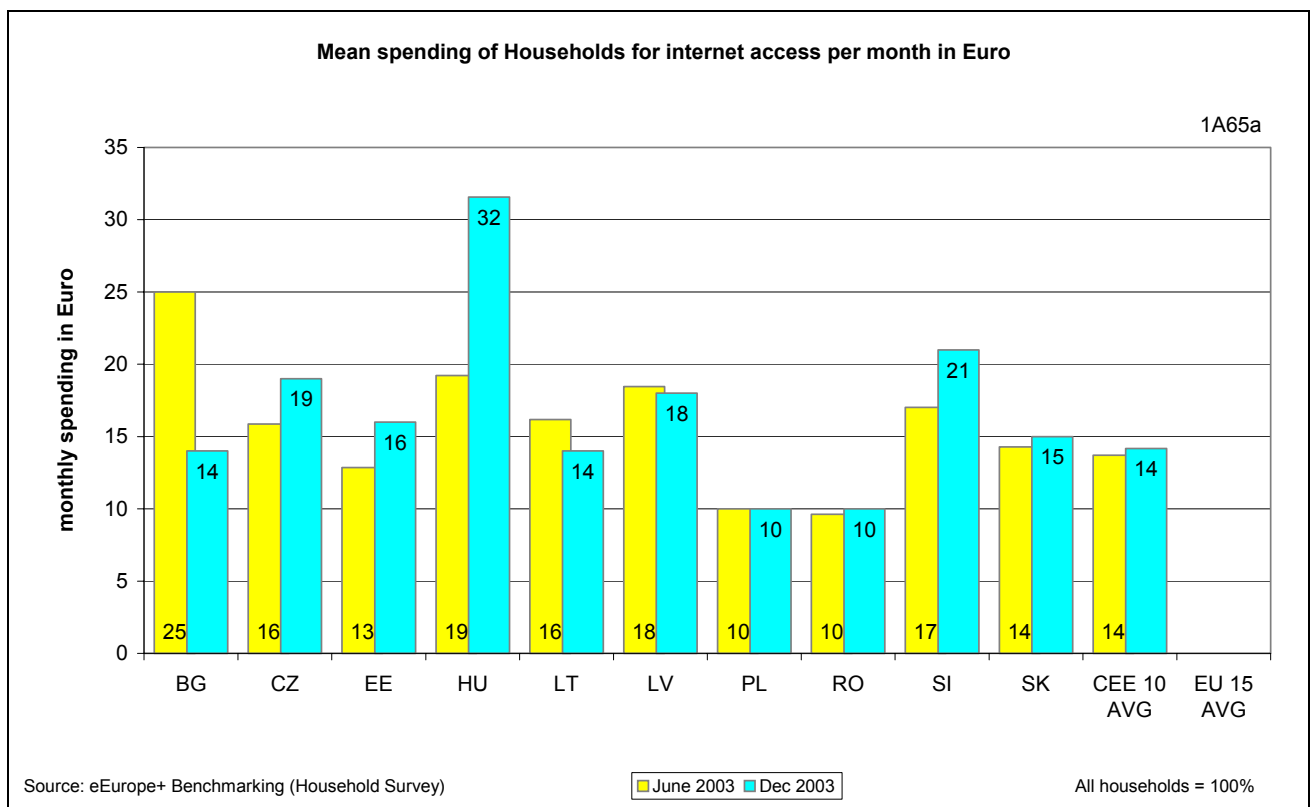
The average spending, in euro, per household per month is not particularly significant in terms of actual cost but can be a significant cost when expressed as a percentage of monthly income as shown in the following chart.

Average spending for internet access per month as percentage of monthly household income

1A65b

Source: eEurope+ Benchmarking (Household Survey)   June 2003   Dec 2003   All households = 100%
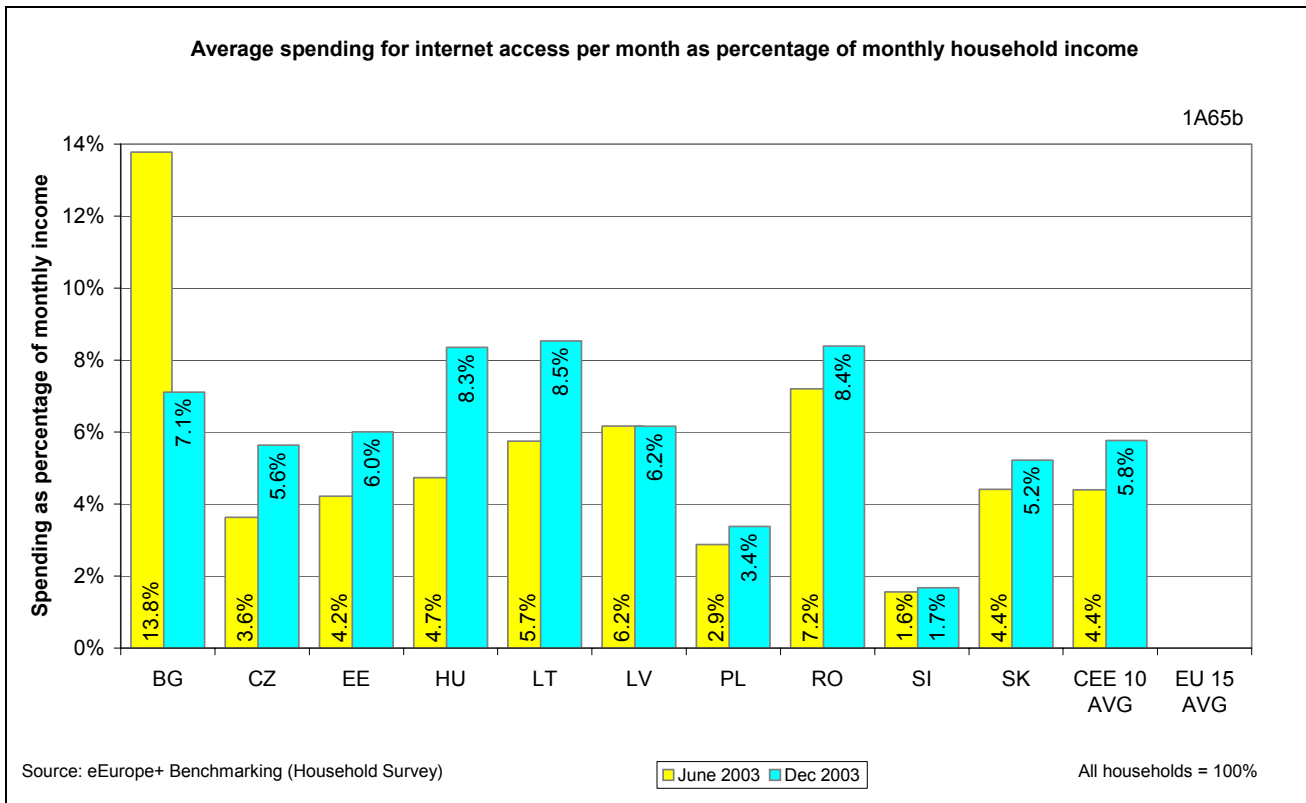
With an average spend of almost six percent of monthly income access to the Internet can represent a significant proportion of a household budget. This underlines the need to: reduce costs (both access charges and usage charges) and promote the development of local language content and services in order to stimulate demand and ensure that users receive value for money.

1.A.7 Percentage of households or individuals equipped with home networking connections.

Networking is defined as the interconnection of two or more PCs or equivalent computers (temporary connection of a handheld computer to a fixed computer, for example, does count as a network).

The average number of households with home networking in the CEE 10 recorded by the 2nd survey is about 0.5%. These levels of activity are too low for any conclusions to be made other than that home computer penetration levels are not sufficient to allow an analysis of networking to take place. Such networking could be associated with home workers.

1.B   FASTER INTERNET FOR RESEARCHERS AND STUDENTS

1.B.1   Speed of interconnections between and within national research and education networks (NREN's) with EU and worldwide

The following table displays the interconnection speeds between the countries over the GÉANT network. This information comes from the 'Backbone Topology' published by Dante in November 2003.

To / From	AT	BG	CZ	DE	EE	HU	LT	LV	PL	SE	SI	SK	RO
AT				2.5G		10 G					622M		
BG													
CZ				10 G					2.5G			2.5G	
DE	2.5G		10 G							10 G			
EE										34M			
HU	2.5 G										622M	2.5G	622M
LT										34M			
LV										34M			
PL			2.5G							10 G			
SE				10 G	34M		34M	34M	10 G				
SI	622M					622M							
SK			2.5G			2.5 G							
RO						622M							

Austria, Germany, and Sweden are shown in this table because it is these parts of the backbone network that would be used to carry traffic from the Baltic to the Balkan states and vice-versa. Network traffic to and from the Baltic States and Poland to the EU would pass through Sweden. Network traffic to and from the Czech and Slovak Republics to the EU would pass through Germany. Network Traffic to and from Hungary, Romania and Slovenia to the EU would pass through Austria.

The following table shows the core network capacities in the National Research Networks and how this has progressed over the last three years. A prediction is given as to how the network speed will develop over the next two years.

Country	BG	CZ	EE	HU	LT	LV	PL	SI	SK	RO
2001		2.5 G	34 M	155M	4 M	100M	155M	100M	4M	
2002		2.5 G	55 M	2.5 G	155M	100M	155M	100M	1G	
2003	1M	2.5 G	100 M	2.5 G	155M	100M	622M	155M	1G	34M
by 2006	100M	10G	2.5G	10 G	2.5G	1G	10G	10G	10G	155M

Source: Terena, 2003

1.B.2   Services available on national research and education networks

Definition: Basic services to individuals, email, FTP, web access worldwide. Medium level services access to central facilities, scarce data sources such as public survey data, online academic library resources. High-level services such as online submission of research proposals, access to super computer time, telescope time.

There is nothing significant to report concerning the services available on the National Research and Education Networks. Generally, these offer similar services to commercial Internet Service Providers. For example, e-mail, web hosting, web access and FTP facilities.

Some NRENs do provide access to central facilities and scarce resources such as public survey data and online academic library resources. One country, Slovenia, also provides a video-conferencing service.

1.B.3   Extent to which primary, secondary and tertiary educational institutes are being connected to the NREN.

The following chart shows the extent to which educational establishments are connected to the National Research Networks in 2003.
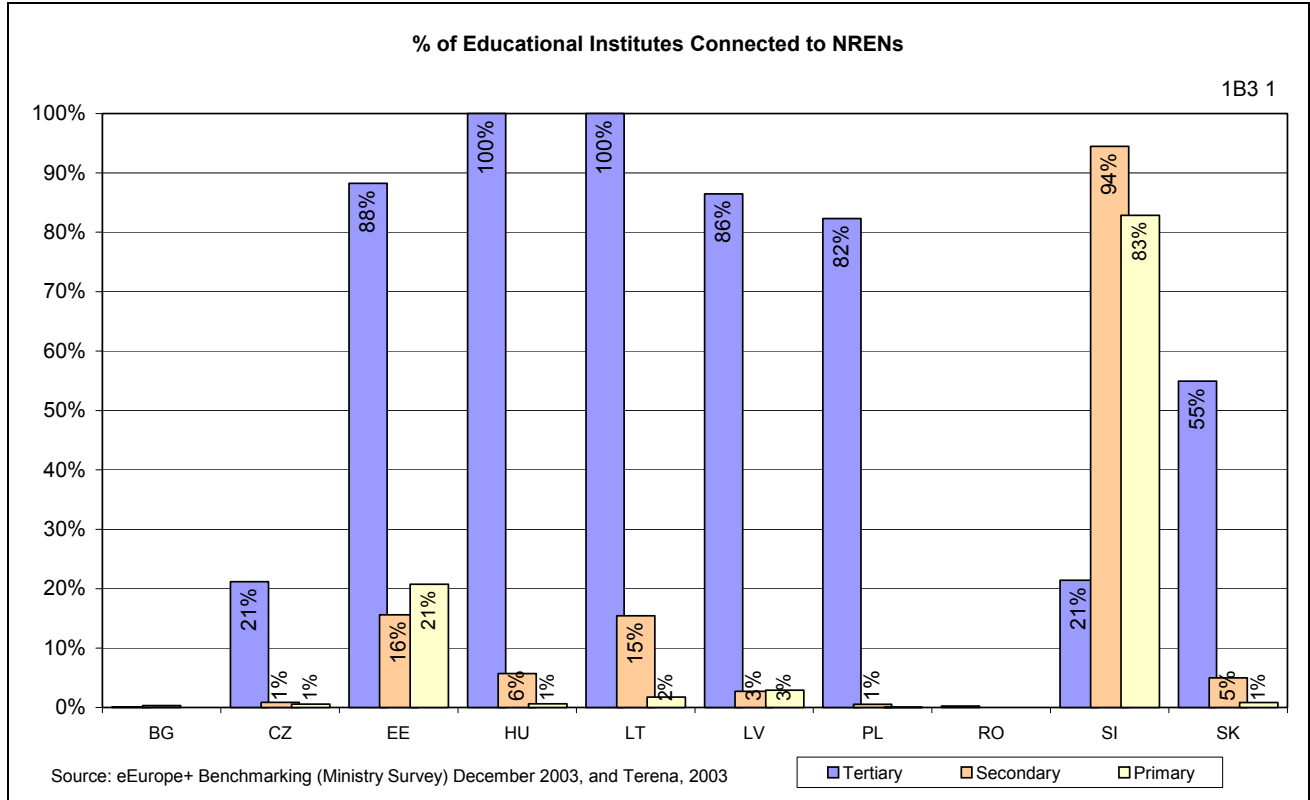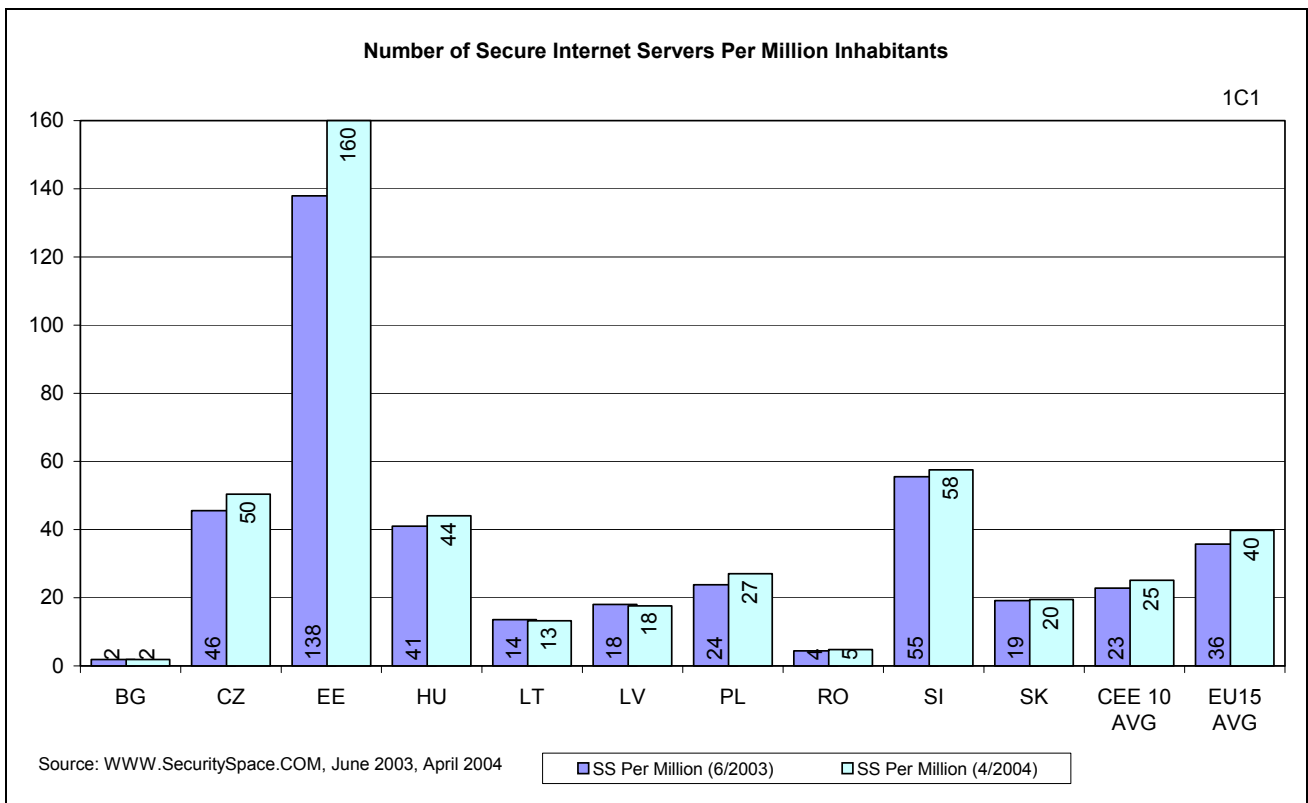

While the rationale for this indicator would seem to be based on a desire to know whether educational establishments have high-speed Internet connections and are using National Research Networks this indicator may be unreliable for this purpose. Indeed, in some countries the educational establishments have to pay the NREN for their usage of the network. In Estonia, for example, the high-speed connections offered by the private sector are cheaper than the services offered by the NREN and so there has been a reduction in the number of educational institutes connected to the NREN as they migrate to private Internet Service Providers.

1.C   SECURE NETWORKS AND SMART CARDS

The existence of a secure information infrastructure is a second key enabler defined by eEurope 2005 for the delivery of services and applications in e-Health, e-Business, and e-Government[9]. A lack of confidence in security is a key inhibitor when security is general issue for all Internet users rather than a national one. Considerable variation can be seen among CEE 10 regarding exposure to risk and the extent to which individuals, enterprises, and organisations are protecting their online activities.

1.C.1   Number of secure internet servers per million inhabitants

Definition: OECD definition of secure server will be used, defined as a server that uses applications to secure its transaction.

Number of Secure Internet Servers Per Million Inhabitants

1C1

Source: WWW.SecuritySpace.COM, June 2003, April 2004

SS Per Million (6/2003)   SS Per Million (4/2004)

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	CEE 10 AVG	EU15 AVG
SS Per Million (6/2003)	2	46	138	41	14	18	24	4	55	19	23	36
SS Per Million (4/2004)	2	50	160	44	13	18	27	5	58	20	25	40

In half of the countries (Bulgaria, Latvia, Lithuania, Romania and the Slovak Republic) the situation has remained essentially static. Small increases are noted in the Czech Republic, Hungary, Poland, and Slovenia. The largest increase occurred in Estonia with an extra 22 secure servers per million inhabitants.

It should be noted that these statistics only include the surveys within the '.country' top-level domains. Any secure servers in the '.COM', '.ORG', '.NET', and other domains, are not included in the statistics, as the countries in which these servers are located cannot be identified.

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[9] eEurope 2005 An Information Society for all, Seville, May 2002

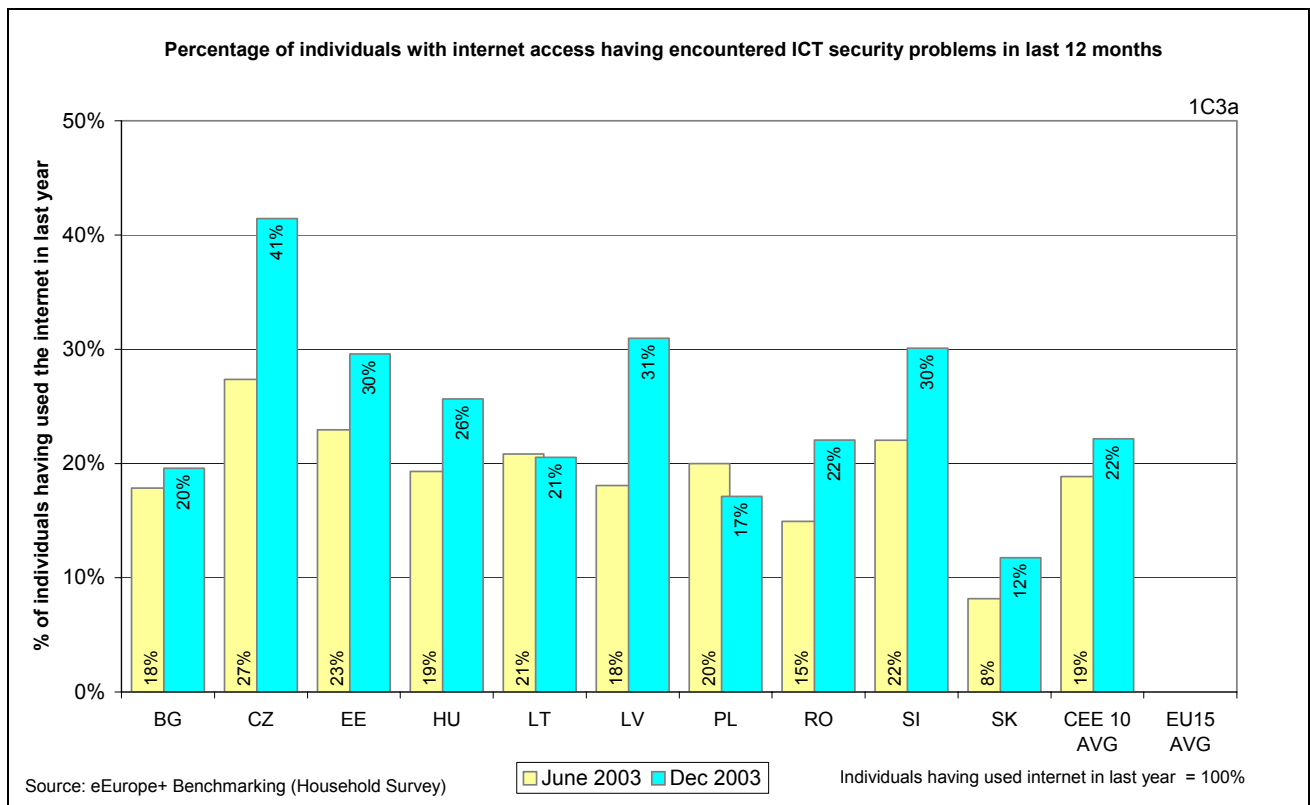**1.C.2   Percentage of computers equipped with a security device.**

Data concerning computers equipped with a security device are not available.
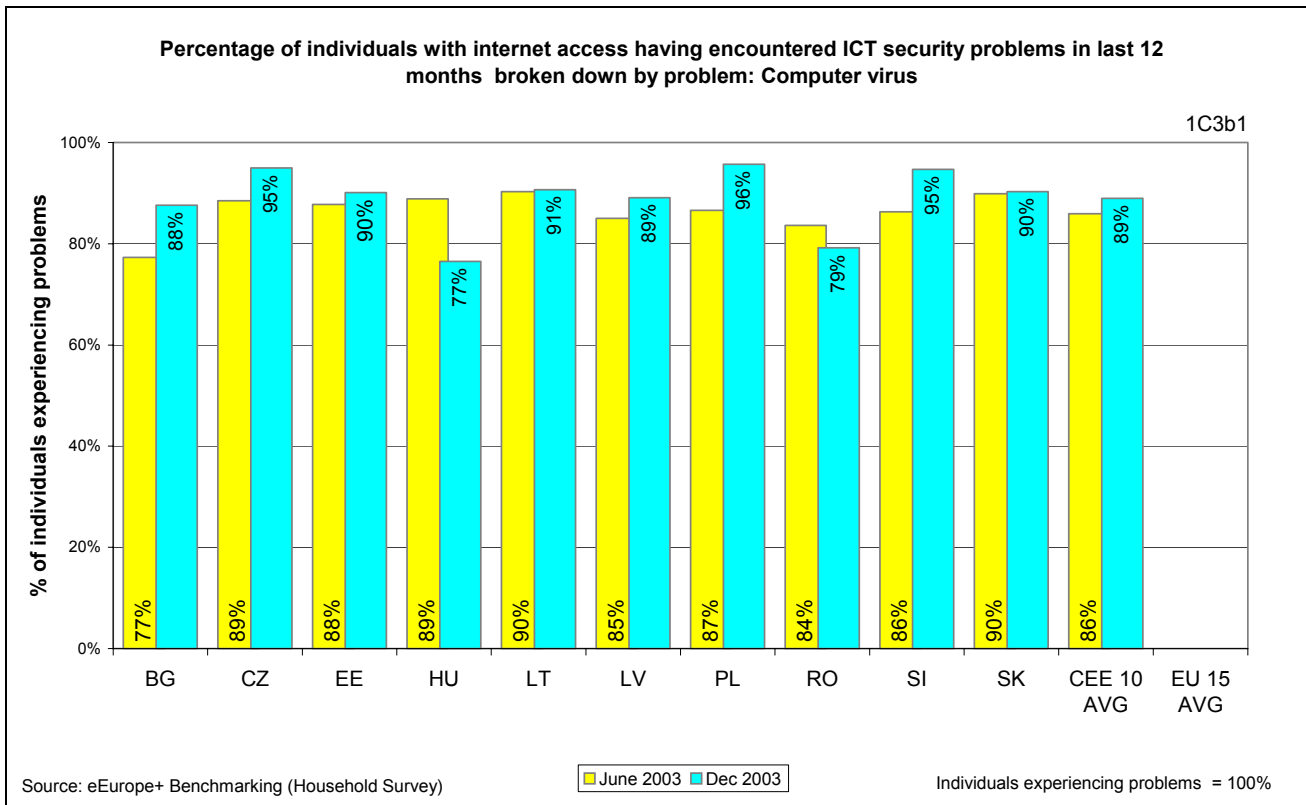
1.C.3   Percentage of individuals with Internet access having encountered ICT security problems.

Security problems are defined for individuals as credit card fraud, computer viruses, and abuse of personal information.

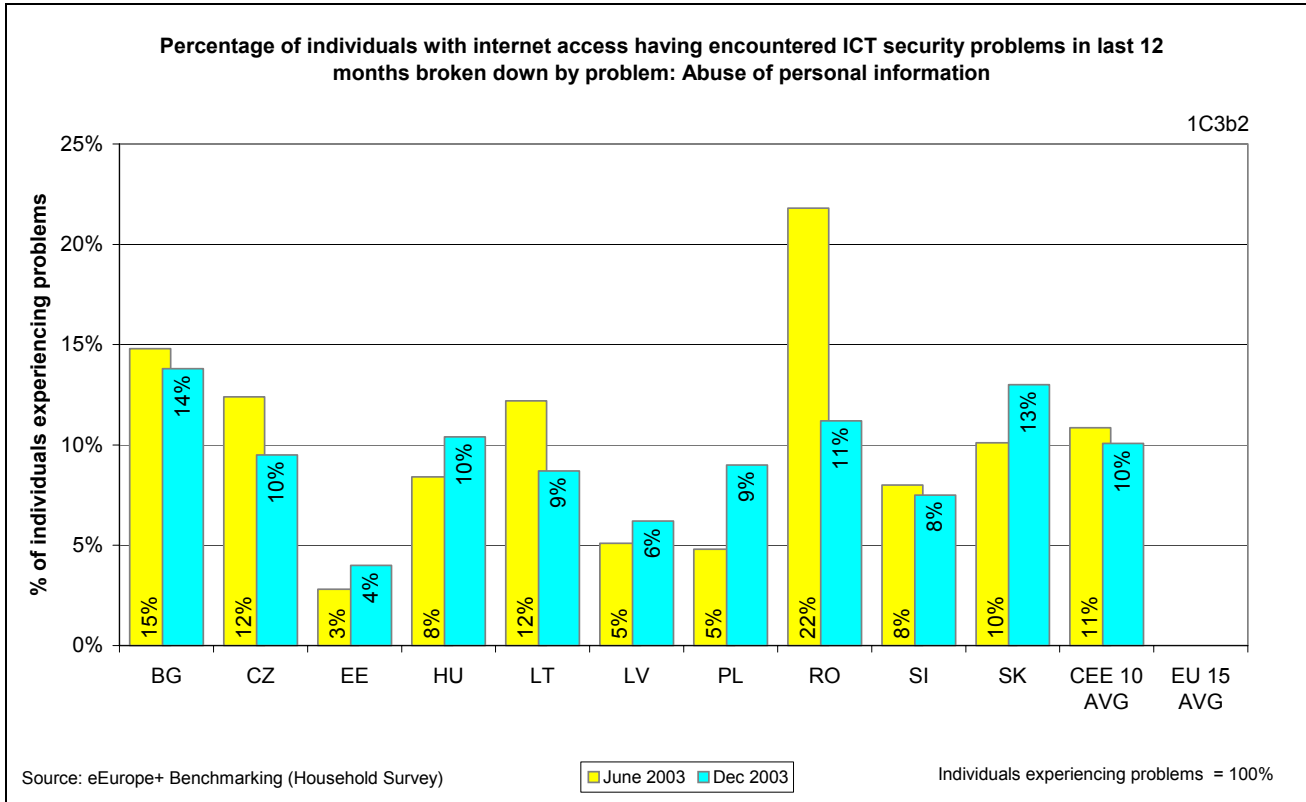*Security risks for individual users proliferated during the second half of 2003.*

Individuals in the Czech Republic experienced the most Internet security problems, followed by Latvia, Estonia, and Slovenia. The Czech Republic, Estonia, Hungary, Latvia, Romania, Slovenia, and the Slovak Republic encountered increased exposure to security problems between June and December 2003.

Percentage of individuals with internet access having encountered ICT security problems in last 12 months

1C3a

	June 2003	Dec 2003
BG	18%	20%
CZ	27%	41%
EE	23%	30%
HU	19%	26%
LT	21%	21%
LV	18%	31%
PL	20%	17%
RO	15%	22%
SI	22%	30%
SK	8%	12%
CEE 10 AVG	19%	22%
EU15 AVG		

Source: eEurope+ Benchmarking (Household Survey)   Individuals having used internet in last year = 100%

Percentage of individuals with internet access having encountered ICT security problems in last 12 months broken down by problem: Computer virus

1C3b1

% of individuals experiencing problems

	BG	CZ	EE	HU	LT	LV	PL	RO	SI	SK	CEE 10 AVG	EU 15 AVG
June 2003	77%	89%	88%	89%	90%	85%	87%	84%	86%	90%	86%	
Dec 2003	88%	95%	90%	77%	91%	89%	96%	79%	95%	90%	89%	

Source: eEurope+ Benchmarking (Household Survey)   ☐ June 2003 ☐ Dec 2003   Individuals experiencing problems = 100%

More than three quarters of individual Internet users in the CEE 10 had experienced a computer virus by the end of 2003.

With problems related to computer viruses, the most frequently experienced security problem, affecting more than three quarters of all individual Internet users in the CEE 10 by the end of 2003. Almost all individuals in the Czech Republic, Poland, and Slovenia had experienced a computer virus compared to three quarters of all individual Internet users in Hungary and Romania. Increasing experience of computer viruses was noted in Bulgaria, the Czech Republic, Poland and Slovenia and decreasing experience in Hungary and Romania.

Percentage of individuals with internet access having encountered ICT security problems in last 12 months broken down by problem: Abuse of personal information

1C3b2

Source: eEurope+ Benchmarking (Household Survey) — June 2003 ▪ Dec 2003 — Individuals experiencing problems = 100%

Fewer than 15% of individual Internet users in any CEE 10 country have experienced security problems relating to abuse of personal information

Security problems relating to abuse of personal information have been experienced at lower levels with no countries experiencing this at more than 15%. Bulgaria (14%) Internet users have experienced the most problems, followed by the Slovak Republic (13%). With Romania showing a decrease of 50% between June and December 2003 and Poland an increase of 4%, other countries are showing little change with respect to this indicator. However, even in Estonia, just over one in twenty individual Internet users experienced abuse of personal information during the last year.

The numbers of respondents having claimed to have experienced problems relating to credit card use are too small to be recorded, i.e. fewer than 5 respondents in any one country.

1.C.4 Percentage of individuals having taken ICT security precautions.
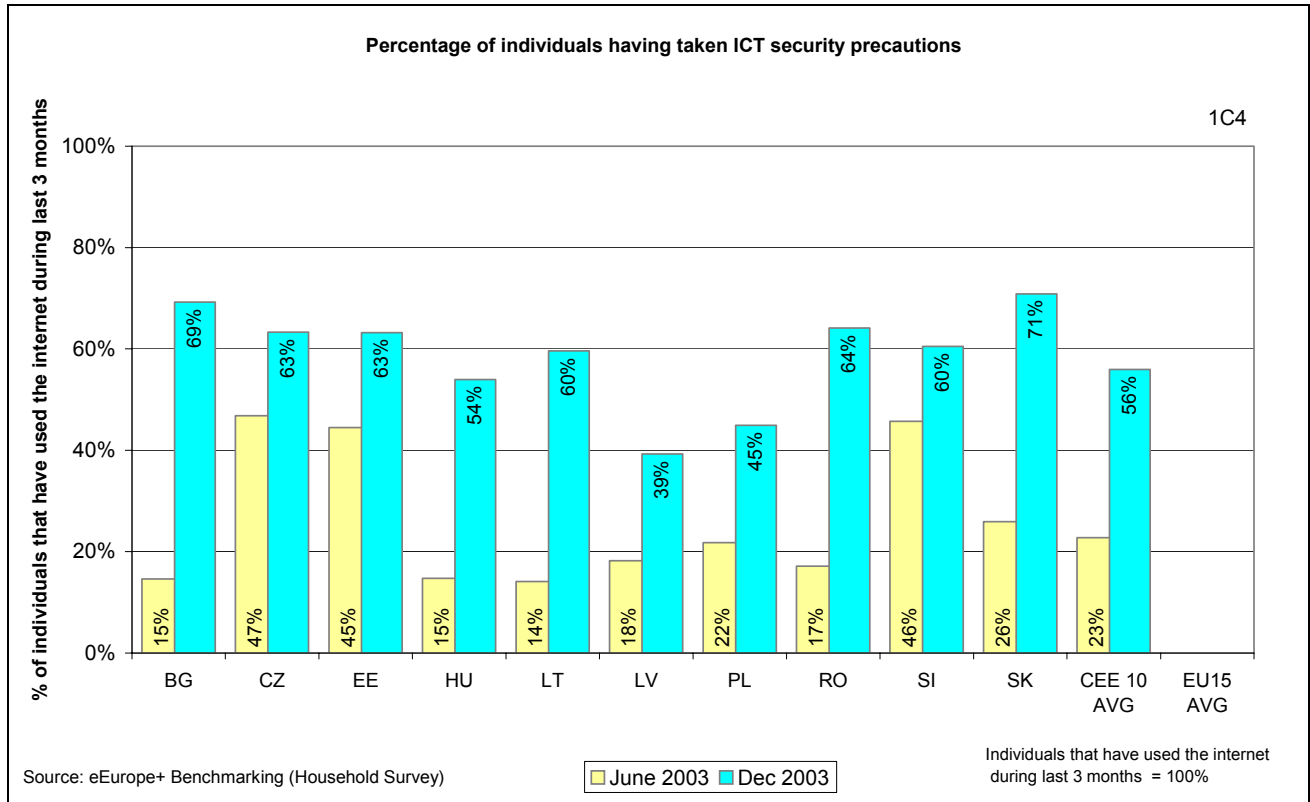
All CEE 10 countries report increases in the percentages of individuals who have taken ICT security precautions during the last six months.

Overall, seven countries report 60% or more individuals having taken security precautions with the Slovak Republic at 71%, Latvia and Poland are lagging at 39% and 45%. Importantly, all countries report increases during the last six months, with doubling taken place in Bulgaria, Hungary, Lithuania, Poland, Romania, and the Slovak Republic. However, it should follow that the frequency of security breaches should have decreased over the same time interval, but this is not yet seen (see 1C3). Whilst many new computers already have antivirus software installed, it should be remembered that to install, and maintain appropriate security devices in older computers in particular, requires money and skills, which may not be available to new Internet users.

1.C.5 Percentage of enterprises with Internet access having encountered ICT security problems.

Security problems for enterprises are defined as computer viruses, unauthorised access to systems or data and blackmail/threats against the enterprise data or software that have occurred in the last twelve months.

1.C.5 (a) Percentage of enterprises with Internet access having encountered ICT security problems
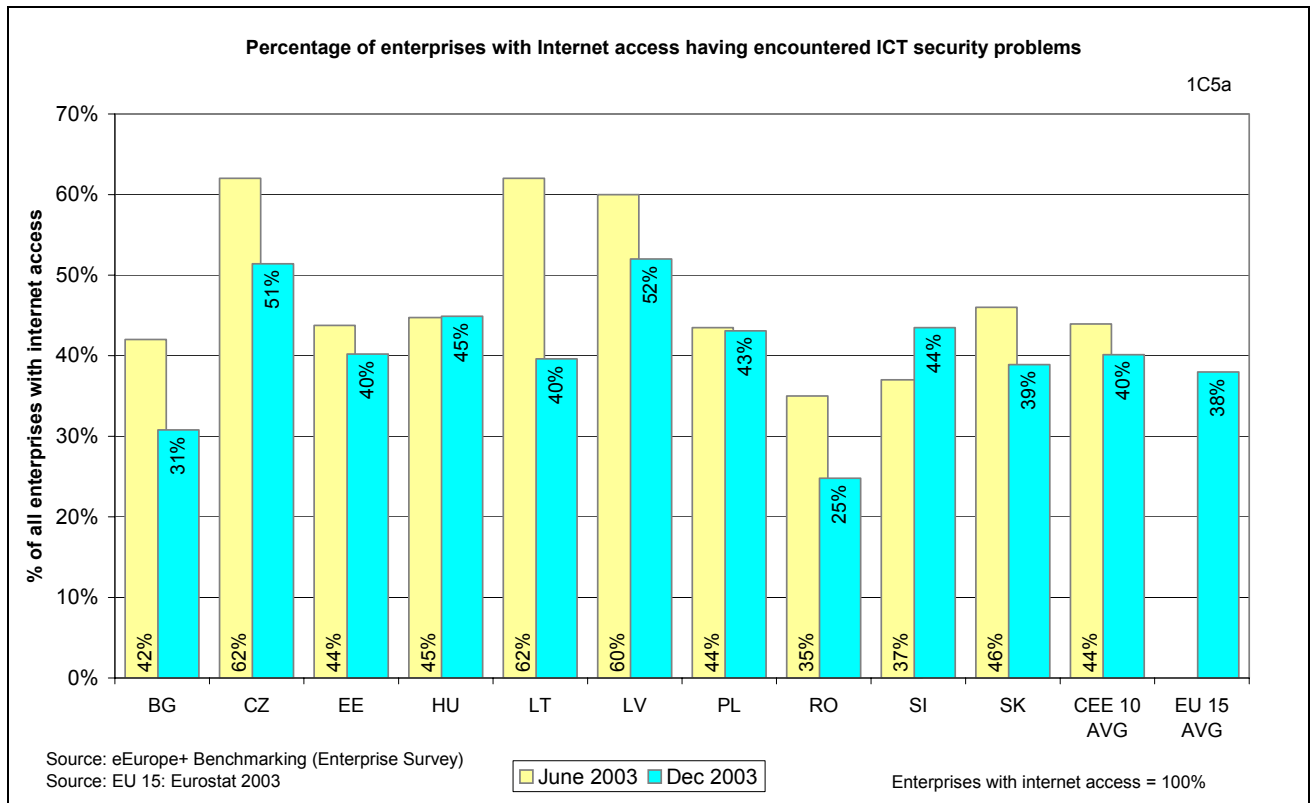
Enterprises with Internet access are encountering more security problems than individuals are although a decline is apparent.

Half the enterprises in the Czech Republic (51%) and Latvia (52%) have encountered security problems, with other countries to a lesser extent. Enterprises in Romania (25%) and Bulgaria (31%) have encountered the fewest. With all countries apart from Slovenia (+7%) showing a decrease in their experience of security problems, despite increasing threats to enterprise computer networks, this suggests that more effective security precautions are being used (See 1.C.6).

1.C.5 (b) Percentage of enterprises with Internet access having encountered ICT security problems broken down by problem
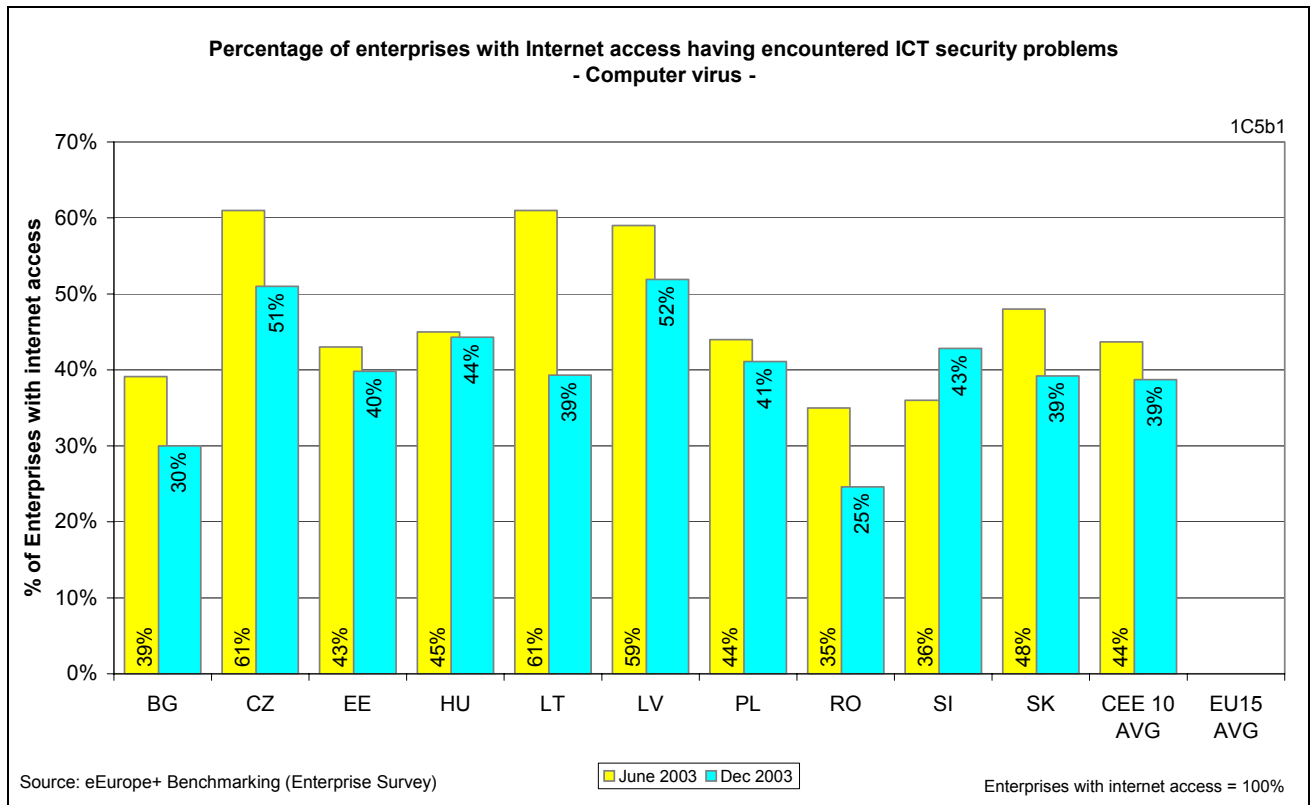
Computer viruses are the most frequently encountered security problem among enterprises, but not as frequently as for individuals, and a decline is apparent.

Computer viruses are the most frequently encountered security problems with the Czech Republic and Latvia experiencing the most at 51% and 52% and Bulgaria (30%) and Romania (25%) the least. Overall, there has been a decrease during the last six months suggesting that security precautions are being effective.

Only four percent or less of enterprises in any country are reporting unauthorized access, with the Czech Republic (-4%) and Latvia (-4%), reporting a decrease during the last six months. Blackmail threats are not reported to be a problem.

Percentage of enterprises with Internet access having encountered ICT security problems - Unauthorised access -

1C5b2

Source: eEurope+ Benchmarking (Enterprise Survey)

☐ June 2003 ☐ Dec 2003

Enterprises with internet access = 100%
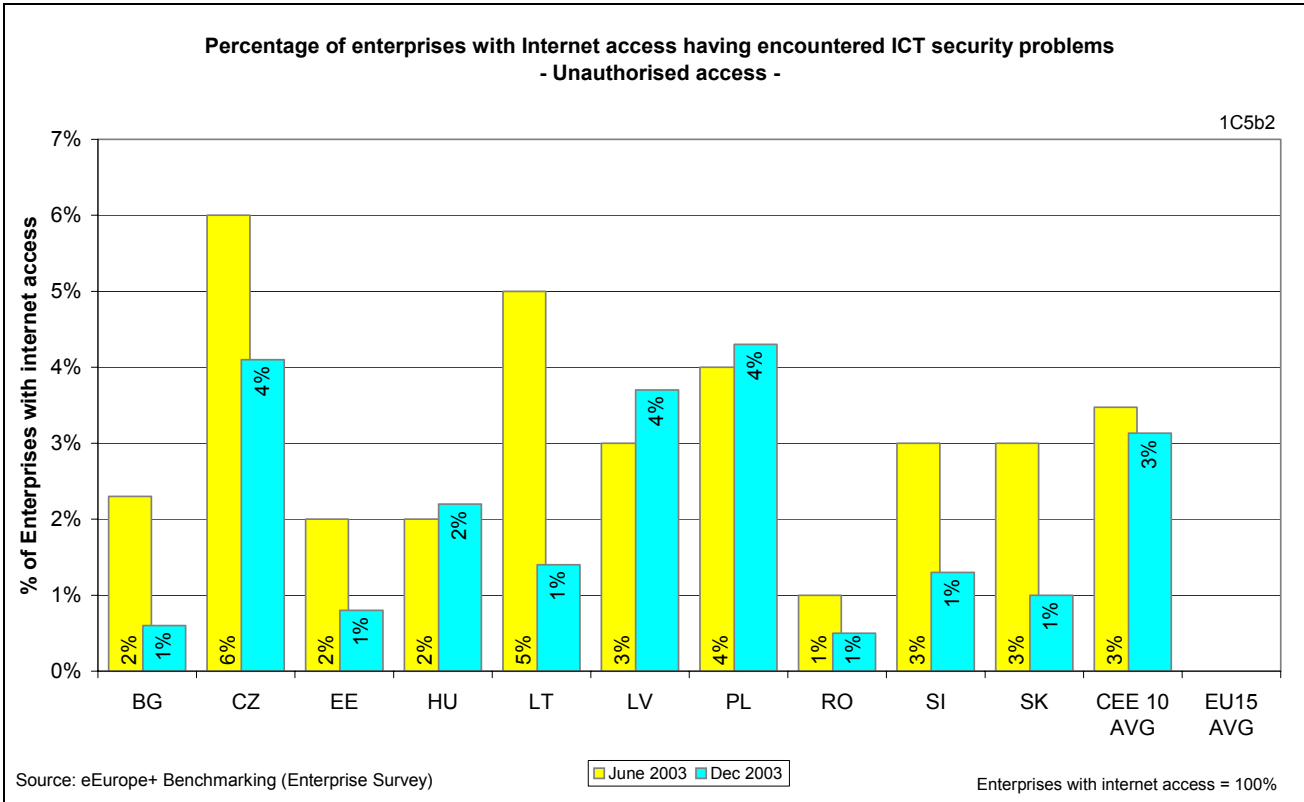
It is not surprising that so few security problems are reported, apart from virus attacks. Many enterprises, particularly banks and credit card companies, may be reluctant to report any compromises to their data systems, as it is bad for their image and can result in negative publicity, especially for larger enterprises. In addition, new Internet users are not usually aware of and informed about the security risks. Security precautions cost money and require skills to maintain, which are not always available to early Internet adopters in micro and small enterprises.

1.C.6   Percentage of enterprises having taken ICT security precautions.
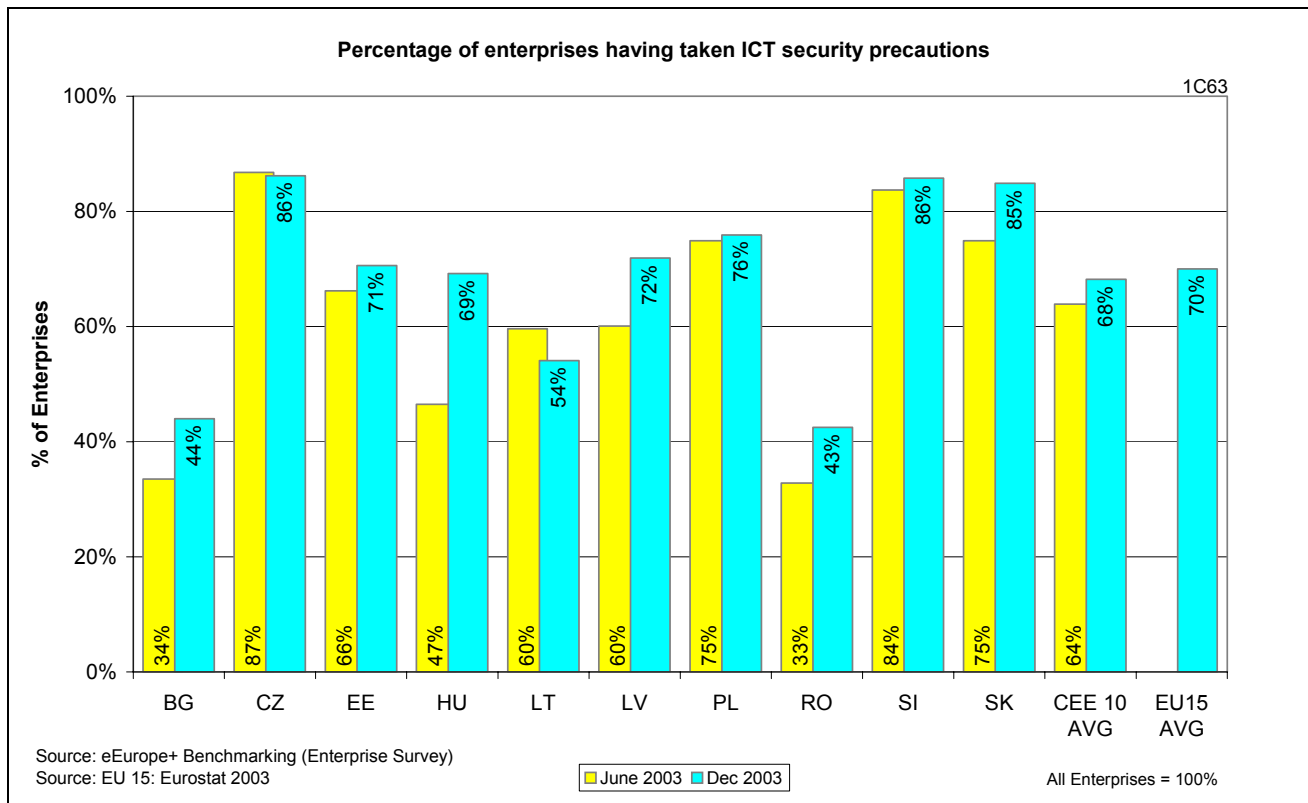
With less than 45% of enterprises in Bulgaria and Romania having taken security precautions, other CEE 10 countries are more effective in protecting their data. An overall increase in the use of security precautions was apparent during 2003.

Only 44% of all enterprises in Bulgaria and 43% in Romania have taken security precautions, but more than 85% of enterprises in the Czech Republic, Slovenia, and the Slovak Republic are taking security precautions; these are the countries that are most pro-active for e-commerce/e-business. An overall increase in the use of security precautions in enterprises was apparent during 2003, particularly in Bulgaria, Hungary, Latvia, Romania, and the Slovak Republic.

Overall, virus checking software is the most frequently used (CEE 10 average 71.1%) followed by the use of firewalls (20.9%), off- site data backup (16.4%), secure servers (11.4%) authentication mechanisms (10.8%), encryption (6.8%) and subscription to security service (4.4%). With increased experience of viruses, increased use of Intranets and Extranets (see 3A10 and 3A11), then these adoption levels would be expected.
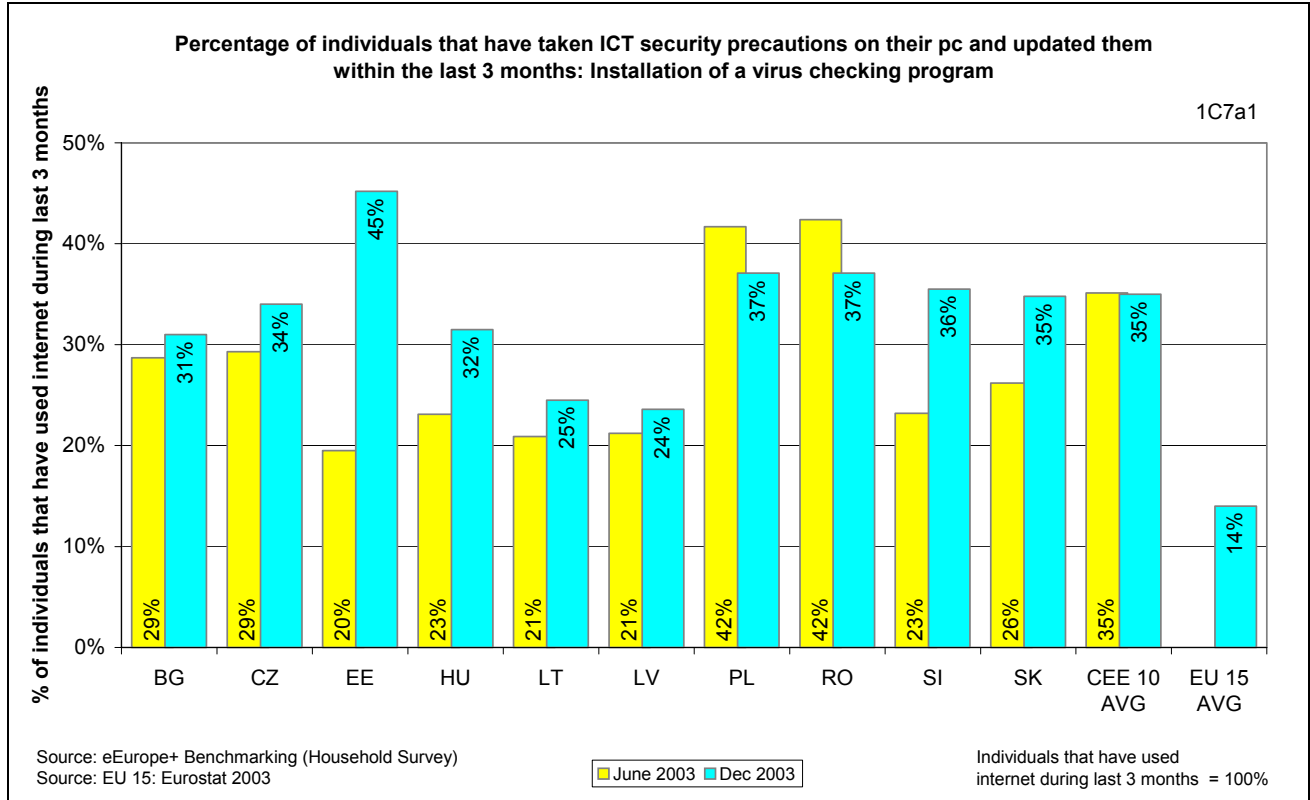
Overall, Slovenia is the most advanced in its frequency of use of security precautions and the leader in the use of encryption and authentication of documents. Poland is the leader in offsite data backup.

Table 8 Enterprise use of security precautions (all enterprises Internet Users CEE 10), December eEurope+ 2003

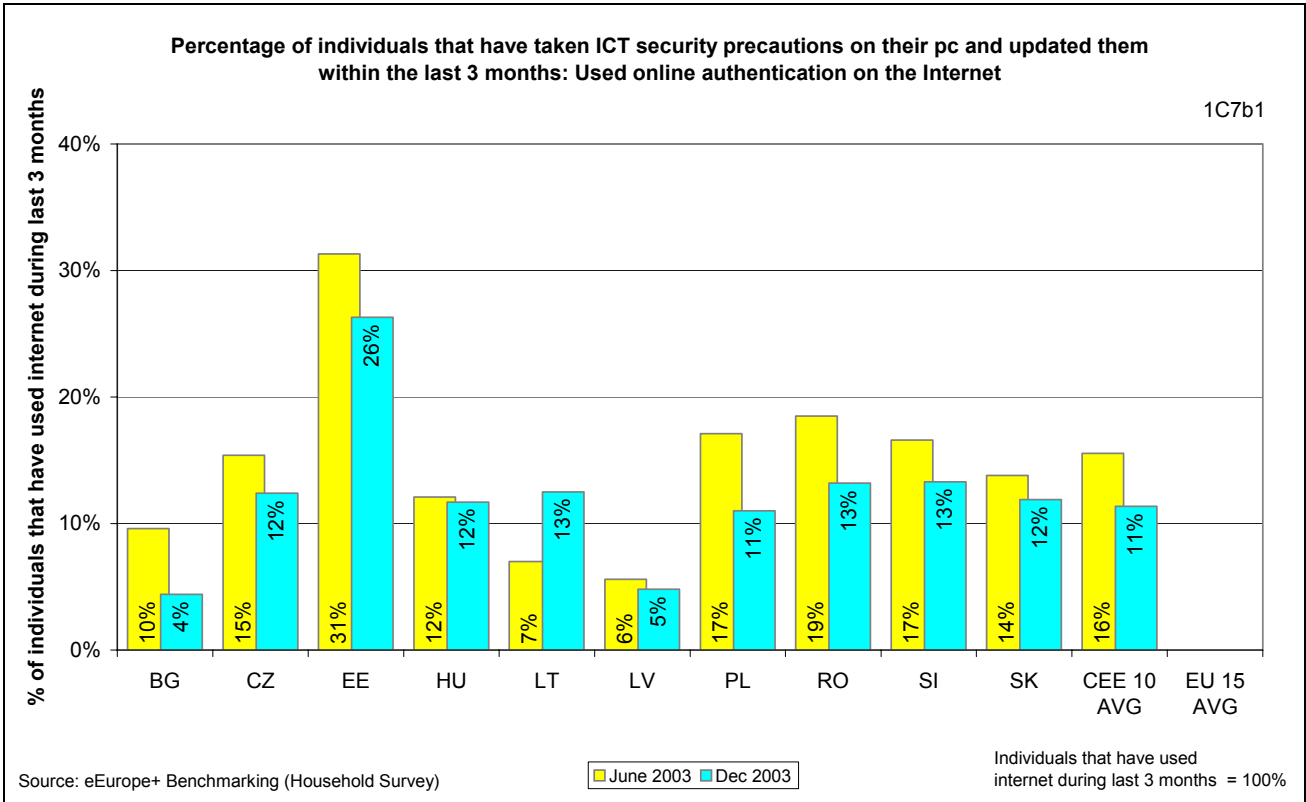| Country	1st precaution (most frequently used)	%	2nd	%	3rd	%	4th	%	5th	%	6th	%	7th	%
BG	Virus checking/protection	32.0	Authentication mechanism	8.5	Secure servers	5.7	Off site data back-up	5.4	Firewalls	5.2	Subscription to security service	3.4	Encryption	3.1
CZ	Virus checking/protection	77.8	Off site data back-up	25.3	Firewalls	20.3	Secure servers	17.2	Encryption	7.1	Authentication mechanism	6.3	Subscription to security service	3.4
EE	Virus checking/protection	67.0	Firewalls	27.9	Authentication mechanism	17.3	Secure servers	9.1	Subscription to security service	4.7	Encryption	3.4	Off site data back-up	3.3
HU	Virus checking/protection	67.0	Firewalls	24.6	Off site data back-up	7.9	Secure servers	7.5	Authentication mechanism	6.0	Encryption	5.2	Subscription to security service	2.9
LT	Virus checking/protection	51.0	Firewalls	12.3	Authentication mechanism	7.7	Off site data back-up	7.2	Encryption	5.8	Secure servers	5.2	Subscription to security service	1.7
LV	Virus checking/protection	67.8	Firewalls	18.3	Authentication mechanism	10.4	Secure servers	9.4	Off site data back-up	7.8	Encryption	3.8	Subscription to security service	1.2
PL	Virus checking/protection	67.1	Off site data back-up	27.1	Firewalls	18.2	Secure servers	15.7	Encryption	10.0	Authentication mechanism	5.9	Subscription to security service	2.1
RO	Virus checking/protection	42.2	Off site data back-up	7.9	Authentication mechanism	8.6	Secure servers	6.0	Firewalls	3.6	Encryption	3.0	Subscription to security service	2.6
SI	Virus checking/protection	82.0	Firewalls	36.7	Authentication mechanism	22.5	Off site data back-up	19.9	Secure servers	17.9	Encryption	12.2	Subscription to security service	8.5
SK	Virus checking/protection	68.9	Off site data back-up	30.7	Firewalls	13.7	Subscription to security service	8.2	Secure servers	6.6	Encryption	5.4	Authentication mechanism	1.8

1.C.7   Percentage of individuals and enterprises that have taken ICT security precautions on their PCs and updated them within the last three months.

For most CEE 10 countries, about one third of individual Internet users have updated their virus-checking program during the last three months.
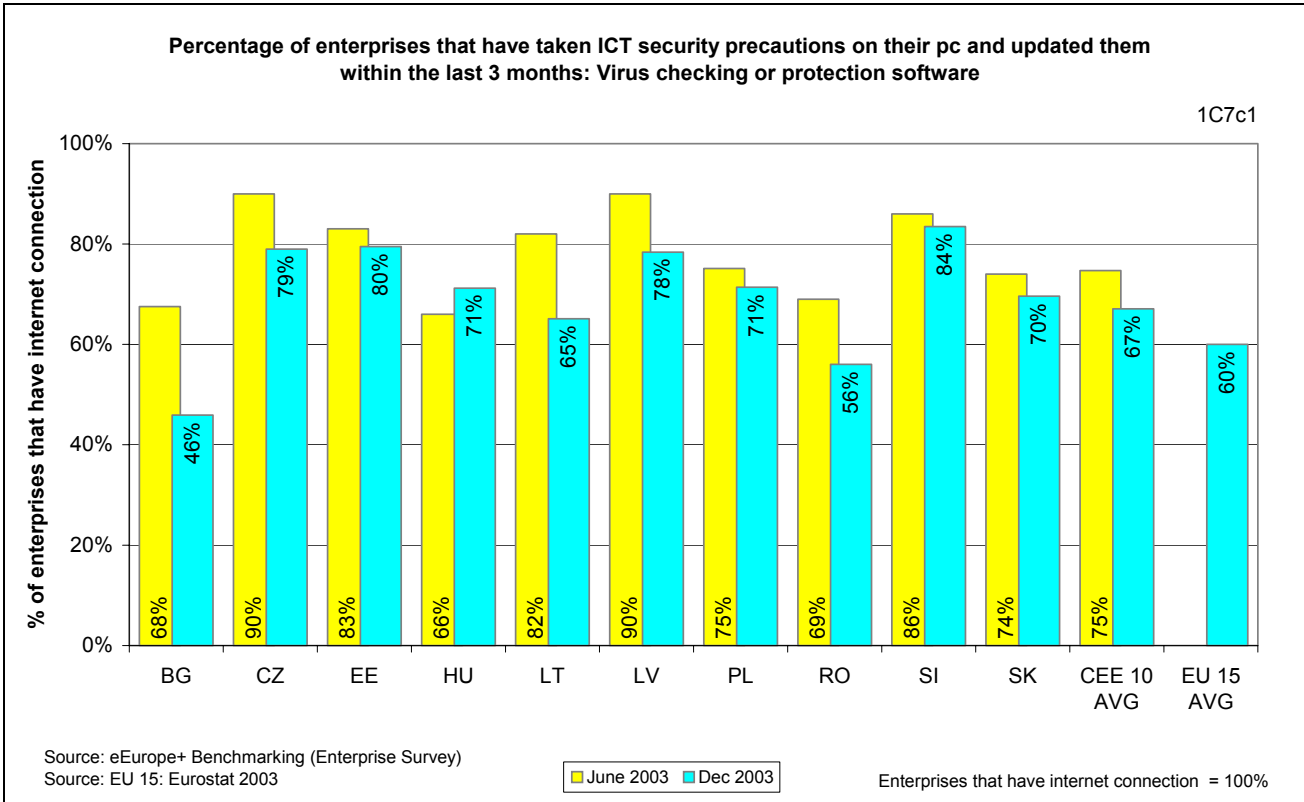

Percentage of individuals that have taken ICT security precautions on their pc and updated them within the last 3 months: Installation of a virus checking program

1C7a1

Source: eEurope+ Benchmarking (Household Survey)
Source: EU 15: Eurostat 2003

June 2003 Dec 2003

Individuals that have used
internet during last 3 months = 100%

This is really an examination of cost and skills as many new computers have virus protection ready installed but need to have it updated and maintained, hence the difference between 1C4 and 1C7. However, it is possible that many older PCs are in use and may require virus protection software to be installed.

Almost half of the individual Internet users in Estonia have installed or updated a virus-checking programme during the last three months and a third of all Internet users in all other countries apart from Lithuania and Latvia. An overall increase is seen in all countries apart from Poland and Romania.

Percentage of individuals that have taken ICT security precautions on their pc and updated them within the last 3 months: Used online authentication on the Internet

1C7b1

Source: eEurope+ Benchmarking (Household Survey)

June 2003 ■ Dec 2003

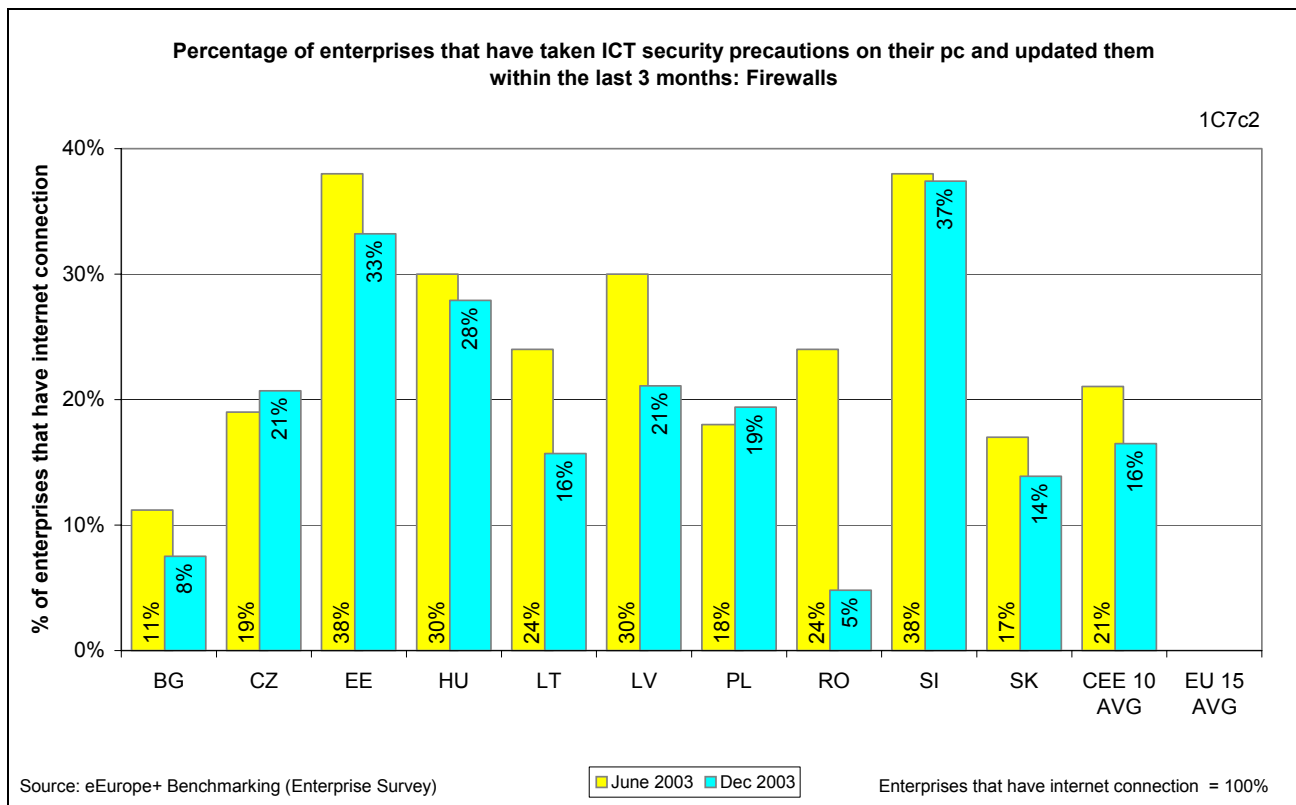Individuals that have used internet during last 3 months = 100%

Estonia is the emerging leader for the use of online authentication amongst regular individual Internet users.

Online authentication is needed for online transactions and dealing with e-Government. It includes the use of passwords, PINs, user IDs, encryption, biometrics and digital certificates. Estonia is clearly a leader with a quarter of its regular Internet users using online authentication, followed by most other countries at levels around 12% and with Latvia (5%) and Bulgaria (4%) trailing. There is a decrease in this indicator across the board apart from in Lithuania (+6%). With many countries everywhere trying to establish successful means of online authentication, these results probably reflect the experimental stages in the adoption of these sophisticated technologies.
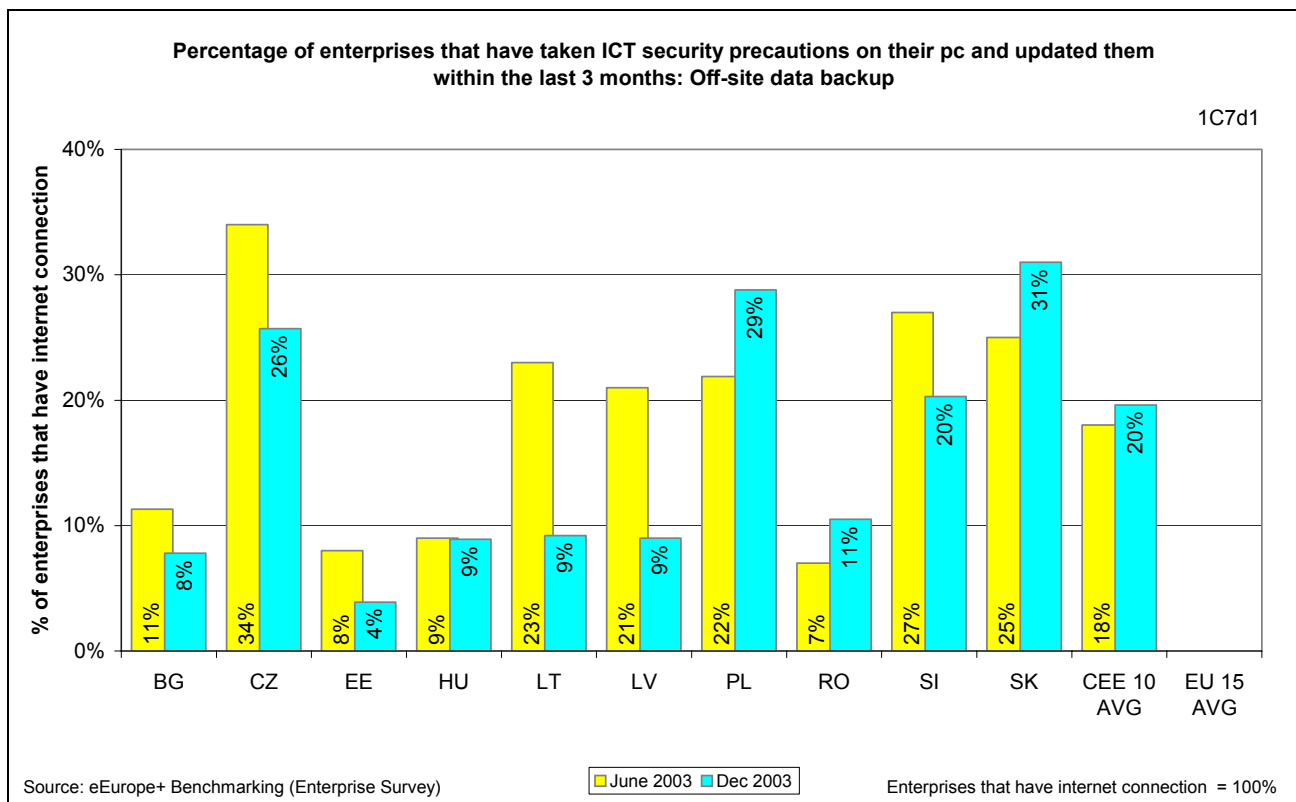
Percentage of enterprises that have taken ICT security precautions on their pc and updated them within the last 3 months: Virus checking or protection software

1C7c1

Source: eEurope+ Benchmarking (Enterprise Survey)
Source: EU 15: Eurostat 2003

June 2003   Dec 2003

Enterprises that have internet connection = 100%

More than 50% of CEE 10 enterprises with an Internet connection have installed and updated virus-checking software.

With more than 60% of enterprises in most CEE 10 countries having installed and updated virus-checking software, this explains why threats from viruses have declined. Interestingly, with a decline noted in most countries, there may be some ambiguity in the indicator, with confusion between installation and updating. It could be that installation took place earlier in the year.

Percentage of enterprises that have taken ICT security precautions on their pc and updated them within the last 3 months: Firewalls

1C7c2

Source: eEurope+ Benchmarking (Enterprise Survey) ☐ June 2003 ☐ Dec 2003   Enterprises that have internet connection = 100%

Estonia and Slovenia lead for the updating of firewalls among enterprises with Internet connections.

Slovenia (37%) is the leader followed by Estonia (33%) and Hungary (28%). All other countries have levels of 21% or less.

Percentage of enterprises that have taken ICT security precautions on their pc and updated them within the last 3 months: Off-site data backup

1C7d1

Source: eEurope+ Benchmarking (Enterprise Survey) ☐ June 2003 ☐ Dec 2003   Enterprises that have internet connection = 100%

The Czech Republic, Poland, and the Slovak Republic are the emerging leaders for offsite data backup among enterprises with Internet connections

With variable patterns seen for 2003, declines are seen in the Czech Republic, Lithuania, Latvia and Slovenia but an increase for Poland and the Slovak Republic. This may reflect changing patterns of data security. Apart from the Czech Republic, Poland, Slovenia, and the Slovak Republic, off site data backup is not popular among enterprises.

Apart from in Estonia (21%) and Slovenia (23%), used by one fifth of online enterprises, authentication mechanisms are not popular. The CEE 10 average is 8%.

Table comparing individual and enterprises use of security

Indicator	EU 15	CEE 10
Individuals		
During last 12 months, experienced fraudulent payment (credit/debit card use)	0.5%	0.2%
During last 12 months, I experienced computer virus	11%	7.7%
Enterprises		
Updated security facility during last 3 months	60%	67%

Overall, Slovenia is the most advanced in the frequency of use of security precautions and the leader in the use of firewalls, encryption, and document authentication whilst the Slovak Republic is the leader for offsite data back up.

The public sector should lead the way regarding security issues, promoting a 'culture of security'.

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