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Nordic Council of Ministers

Indicators for the Information Society in the Baltic Region 2005

Action line 6


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Nordic co-operation

Nordic co-operation, one of the oldest and most wide-ranging regional partnerships in the world, involves Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland and Åland. Co-operation reinforces the sense of Nordic community while respecting national differences and similarities, makes it possible to uphold Nordic interests in the world at large and promotes positive relations between neighbouring peoples.

Co-operation was formalised in 1952 when *the Nordic Council* was set up as a forum for parliamentarians and governments. The Helsinki Treaty of 1962 has formed the framework for Nordic partnership ever since.

The *Nordic Council of Ministers* was set up in 1971 as the formal forum for co-operation between the governments of the Nordic countries and the political leadership of the autonomous areas, i.e. the Faroe Islands, Greenland and Åland.

0. Preface

The Northern e-Dimension Action Plan – NeDAP – 2005-06 was adopted by the Heads of Government of the Council of the Baltic Sea States during the 5th Baltic Sea States Summit, 21 June 2004, and by the Nordic Council of Ministers, 26 August 2004. The action plan, moreover, is a tangible result of a new cooperation arrangement between the Council of Baltic Sea States, the European Commission and the Nordic Council of Ministers.

The NeDAP 2005-06 consists of 8 action lines: Internet and Internet Applications in Research and Development; A Secure Information Infrastructure; eSkills and eLearning; eHealth; eGovernment; eIndicators; eEnvironment; eInclusion.

This report presents the results of work conducted in 2005 by action line 6, eIndicators, providing new and comprehensive statistics about the information societies in the Baltic Region.

Basically, the first steps were taken in 2003 when a set of indicators was presented under the 2002-04 NeDAP.

The new report provides benchmarks for the individual Baltic Sea States. Additionally, the Baltic Region as such is benchmarked against the EU-25. The Region, including four of the new EU member states, generally matches the EU-25 average and often surpasses it. By putting forward an array of tangible eIndicators, the report will contribute to the European policy debates on the *Lisbon strategy* and its common actions for growth and employment. Presenting the Baltic Sea region as a progressive and dynamic region, in terms of information and communication technology deployment, the report can furthermore contribute to the pending work regarding *i2010 - A European Information Society for growth and employment.*

Part of the region, i.e. the Nordic countries, is subject to a more in depth analysis and comparison. The results are published in "Nordic Information Society Statistics 2005" and the publication is yet another outcome of the longstanding cooperation between the Nordic countries within the framework of the Nordic Council of Ministers.

The organisation of work has been chaired by Denmark assisted by Lithuania and Poland – an excellent example of cross-border cooperation and knowledge sharing.

Data has generously been provided by the representatives of the statistical institutions in Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia, and Sweden. Without their support it would not have been possible to produce the report.

The editorial team consisted of Mr. Gediminas Samuolis, Statistics Lithuania, Ms. Violetta Szymanek and Ms. Monica Mroczek, Statistics Poland and Ms. Helle Månsson, Ms. Ellen Nielsen and Mr. Jens Thomasen, Statistics Denmark. I would like to thank these colleagues for their enthusiastic efforts. The editorial team is responsible for charts and text and any misinterpretation of data is their responsibility. My thanks are also extended to Ms. Mette Shannon for valuable linguistic advice.

Finally, I would like to thank the Nordic Council of Ministers, the Council of Baltic Sea States, the Danish Ministry of Science, Technology and Innovation and my own administration Statistics Denmark for their fruitful cooperation and sponsorship making this report possible.

Copenhagen, December 2005

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Contents

1. Introduction

The Baltic Region covers a vast area, more precisely 19,178,195 sq. km, and has a population of approx. 299 million people. The countries of the region – Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia and Sweden - differ widely as regards population size and density, climate, vegetation and socio-demographic conditions, but common to all of them is the membership of the Council of the Baltic Sea States – CBSS.

The Baltic Sea has been an important way of communication and trade since early ages, enabling transportation and exchange of goods and knowledge, and settlement in new areas. Over the years, the region has been the centre of wars, but of new alliances too, and now the countries are bound together in many ways, formally as well as informally. The new information and communication technologies have contributed in a profound way to enable communication and the sharing and exchange of information, and they have affected the societies in a range of other ways as well.

This publication attempts to provide a picture of the Information Society in the Baltic Region, in line with the primary objective of Action line 6 of the Northern e-Dimension Action Plan: to establish a set of indicators related to the measurement of the Information Society in the Baltic Sea Region. This publication follows up on the publication, *Indicators for the Information Society in the Baltic Region – Action line 6*, published in 2003, having more focus on the region in general, comparing where possible the indicators for the Baltic Region with the EU.

The data for this publication were collected from the national statistical offices of the Baltic Region during the summer of 2005. The material covers a range of indicators measuring areas as the ICT infrastructure, the use of ICT by households, individuals and enterprises, the ICT sector, foreign trade with ICT goods, and research and development in the ICT sector. Besides this, it was decided to focus on three themes: e-skills, e-security and e-government – all central issues in the information society, and areas which have not been covered well statistically.

The publication consists of three main parts: the text part with 7 chapters each addressing a topic or theme, secondly chapters 9 and 10 focusing on individual national results and the plans for future development of Information Society statistics, and thirdly the two annexes with definitions (Annex 1) and tables (Annex 2).

The data presented in the publication are mainly collected and provided by the national statistical institutes, but also other public institutions collect data that are relevant for the information society. This mainly applies to data concerning ICT infrastructure, which are in many cases provided by other public institutions than the national statistical institutes.

As far as possible the definitions used in the publication are official definitions, e.g. based on the SBS[1] regulation. Where available, data for the EU are used for comparison with the data for the Baltic Region as a whole.

The national statistical institutes have supplied a range of tables, the inclusion of which would be outside the scope of this publication. Most of these tables will be published on the homepage of Statistics Denmark on www.dst.dk/it.

[1] Council Regulation (EC, Euratom) No. 58/97 of 20 December 1996 concerning structural business statistics amended by Council Regulation 410/98, Commission Regulation no. 1614/2002 and European Parliament and Council Regulation no 2056/2002.

2. ICT infrastructure

2.0 Introduction

The ICT infrastructure is the backbone of electronic and remote communication. The availability of the different channels of access differs between the countries of the Baltic Region, though networks are still being expanded and improved, providing still better opportunities to make use of the new technologies. The data on the infrastructure is basic information for understanding and interpreting the changing ways of communication, e.g. the use of the Internet[1].

Methodological information

Data for the description of the ICT infrastructure are in many cases provided by the national authorities, e.g. ministries or agencies, responsible for the administration etc. concerning post and telecommunications systems.

A range of data relating to this area has furthermore been provided yearly from the Member countries to Eurostat, the statistical office of the EU, within the framework of Statistics on Communication and Information Services (COINS)[2].

Data concern number of subscriber lines and traffic (outgoing calls, SMS and MMS messages).

The Baltic Region average is calculated on basis of data for those countries for which data are available.

2.1 Networks

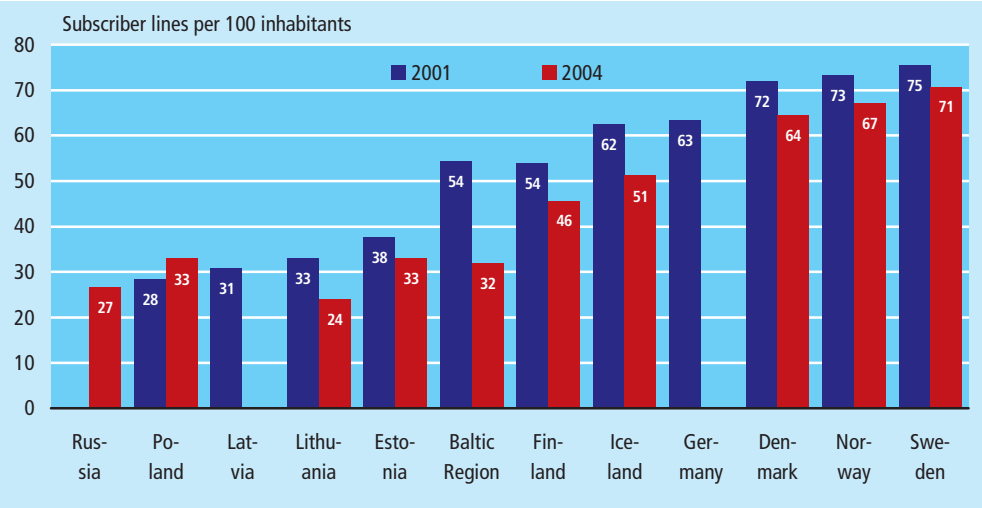
Mobile networks are strong communication links in the Baltic Region

- Increase in number of mobile subscriptions in the Baltic Region, whereas the number of fixed network subscriber lines is decreasing.
- 38 mobile subscriptions per 100 inhabitants in the Baltic Region - 101 if calculated exclusive of Russia.
- The number of mobile subscriptions is more than 3 times as high in Lithuania in 2004 as in 2001, and in Estonia the number has more than doubled from 2001 to 2004.

[1] See also chapters 3 ICT use by the population, 4 ICT use by enterprises and 7 e-Government.

[2] More data on telecommunications on EU level can be found on Eurostat's homepage: http://epp.eurostat.cec.eu, Theme Science and technology.

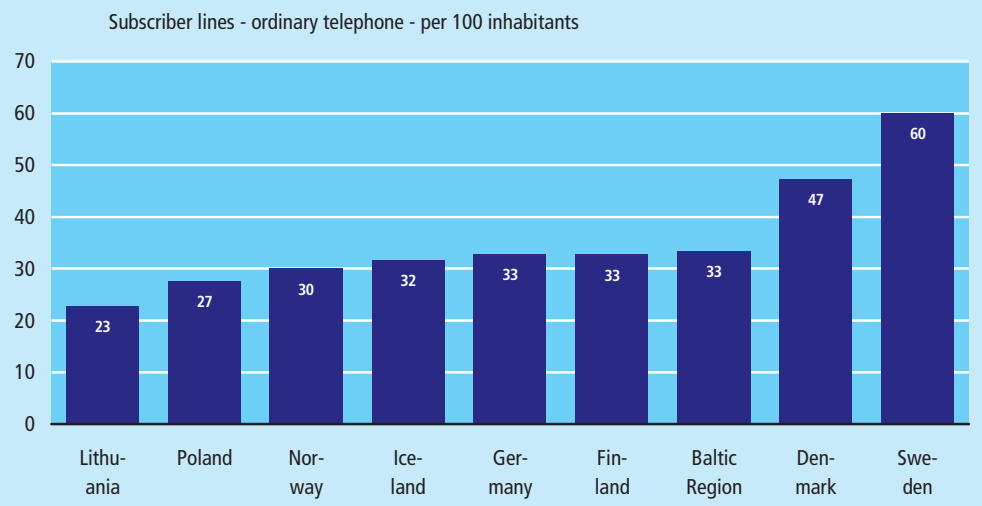
Figure 2.1 **Number of fixed network subscriber lines per 100 inhabitants. 2001 and 2004**



Approx. 67.7 million fixed network subscriber lines

In 2004 there were approx. 67.7 million fixed network subscriber lines in the Baltic Region, Germany and Latvia excluded. On average the inhabitants[3] of the region share 32 lines per 100 capita - a decrease of more than 40 per cent - or 22 lines - since 2001, cf. figure 2.1.

Figure 2.2 **Number of ordinary telephone subscriber lines per 100 inhabitants. 2004**



49.4 million ordinary telephone lines

Most of the fixed network subscriber lines are ordinary telephone lines, of which there are approx. 49.4 million in the Baltic Region, or roughly 33 per 100 inhabitants[4], cf. figure 2.2. With 60 lines per 100 inhabitants, Sweden is by far the country of the region with the highest rate, followed by Denmark with 47 lines per 100 inhabitants. For the other countries the number of ordinary telephone lines varies from 23 per 100 inhabitants in Lithuania, to 33 in Germany and Finland.

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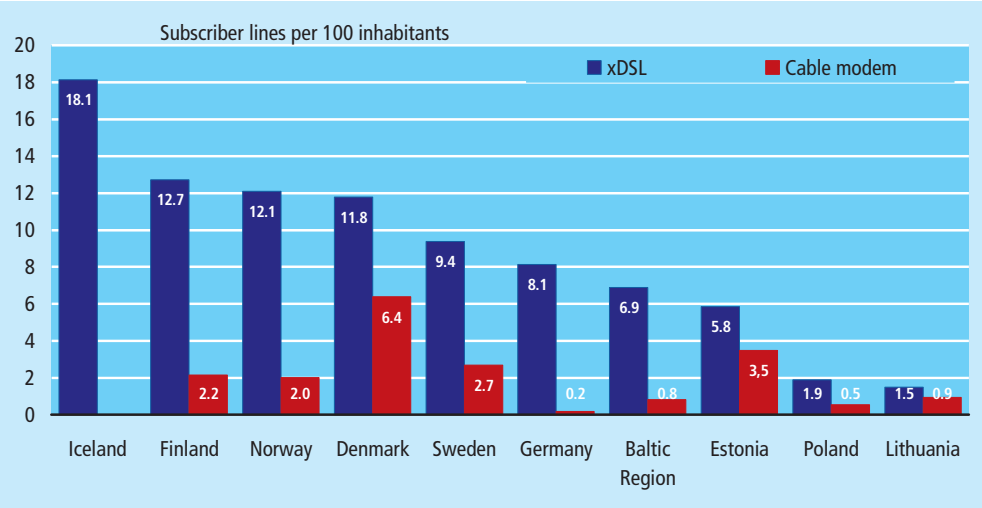
[3] The networks are used by enterprises as well as by private persons, cf. also chapters 3 and 4.

[4] Calculated on basis of population and number of telephone lines only for those countries, for which data for both categories are available, in this case excl. Estonia, Latvia and Russia.

Figure 2.3 **Broadband subscriptions per 100 inhabitants. 2004**



Broadband is more frequent than cable modem connections

Broadband connections via xDSL[5] are much more frequent than cable modem connections, cf. figure 2.3. The average for the Baltic Region is 7 xDSL subscriptions per 100 inhabitants, whereas less than one subscription per 100 inhabitants to broadband access via cable modem.

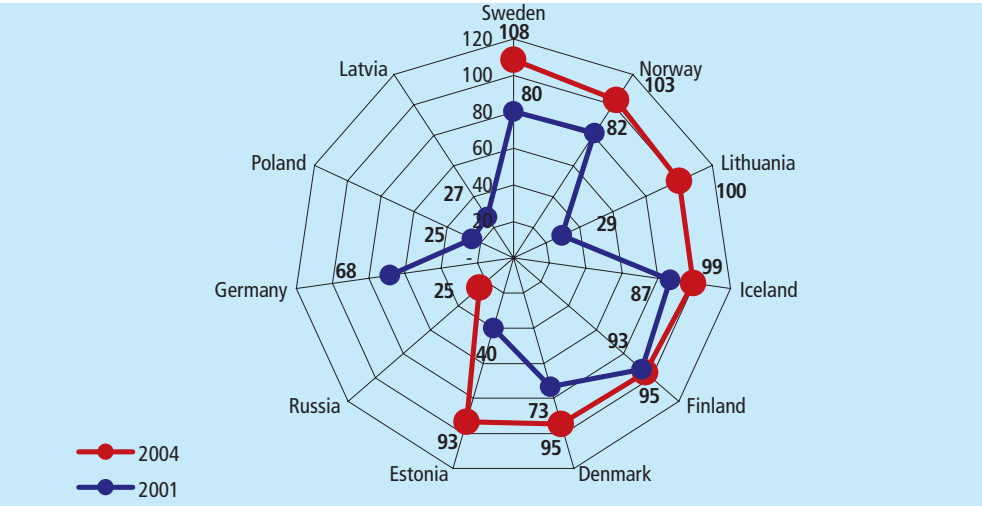
Most countries have 92 or more mobile subscriptions per 100 inhabitants

On average there were 38 mobile subscriptions per 100 inhabitants in the Baltic Region in 2004, and calculated exclusive of Russia the figure was 101. Except for Russia there are more than 92 lines per 100 inhabitants in all the countries for which data are available, and in Sweden and Norway the figures are 108 and 103, respectively, cf. figure 2.4.

Mobile subscriptions increased to 100 per 100 inhabitants in Lithuania from 2001 to 2004

From 2001 to 2004 the number of mobile subscriptions has increased by 15 per cent or more in most of the countries for which data are available for 2001 and 2004. But especially Lithuania and Estonia have seen substantial growth: in Lithuania the number has increased by nearly a factor 3.5, reaching 100 lines per 100 inhabitants in 2004. In Estonia the number has more than doubled to 93 lines per 100 inhabitants.

Figure 2.4 **Number of mobile subscriptions per 100 inhabitants. 2001 and 2004**



[5] Includes all types of DSL: ADSL (Assymetric Digital Subscriber Line), SDSL (Symmetric Digital Subscriber Line), HDSL (High Speed Digital Subscriber Line) etc.

Fixed networks used for 28 hours on average per inhabitant

The Baltic Region networks were used for traffic, which for the fixed networks came to 502.6 billion minutes in 2004[6], cf. table 2.1, or on average approximately 28 hours per inhabitant. The Germans used 65 per cent or two thirds of the total time, corresponding to an average use of the fixed networks for 66 hours per inhabitant. The Norwegian and especially the Swedish population used the fixed lines more intensively however, illustrated by an average use of 85 and 71 hours per inhabitant in 2004, respectively.

On average 10 minutes spent on calls via mobile networks for each inhabitant

The use of mobile networks is not as intense as the use of fixed networks, counted as minutes. The total number of minutes used was nearly 40 billion in 2004, or an average of 10 minutes per inhabitant in the Baltic Region[7]. Finland was the most intensive user of mobile networks, as the number of minutes used on outgoing calls corresponded to an average of 31 minutes per inhabitant.

Table 2.1 **Outgoing calls on fixed networks and mobile networks. 2004**

	Fixed networks	Mobile networks	Population
	—— outgoing calls, 1,000 minutes ——		
Denmark	16 782 079	5 160 177	5 411 405
Estonia	1 072 709	1 123 478	1 347 000
Finland	11 442 860	9 642 967	5 236 611
Germany	326 000 000	n.a	82 400 000
Iceland	954 690	385 076	293 577
Latvia	n.a.	n.a.	2 306 434
Lithuania	1 738 192	2 386 300	3 425 324
Norway	19 531 578	5 636 690	4 577 457
Poland	25 441 946	8 006 628	38 190 600
Russia	53 854 160	n.a.	144 168 000
Sweden	45 769 000	7 620 000	9 011 392
Baltic Region	**502 587 214**	**39 961 316**	**296 367 800**

The Baltic Region total of outgoing calls on fixed networks is calculated excl. Latvia for which data are not available.

The Baltic Region populations are frequent users of SMS

Mobile networks bring not only the possibility of voice communication – the mobile phones also allow for sending SMS (Short Messaging Services) and MMS (Multimedia Messaging Services) messages - facilities, which are both used frequently in the Baltic Region, cf. figure 2.5 and 2.6.

300 text messages per inhabitant in 2004

The inhabitants in the Baltic Region sent approximately 300 text messages per inhabitant, but there are substantial variations among the countries, cf. figure 2.5. The Danes are by far the most frequent users of SMS. The number of text messages sent in Denmark in 2004 was 6.6 billion, corresponding to an average of 1,211 per inhabitant.

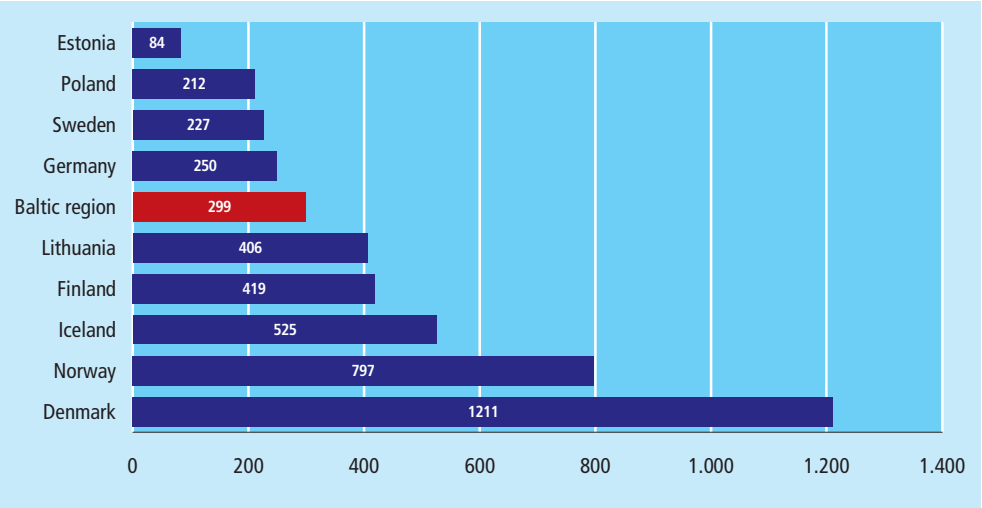
SMS based services

A relatively new and undoubtedly growing market is SMS services, where the recipient can subscribe to messages being sent when certain things occur, e.g. stock market news, news on sports events etc. These types of services, sent to a group of subscribers or subscribers with a certain profile, are likely to increase the total number of messages.

[6] Excluding Latvia, for which data are not available

[7] Excluding Germany, Latvia and Russia for which data are not available.

Figure 2.5 **Number of SMS messages per inhabitant. 2004**

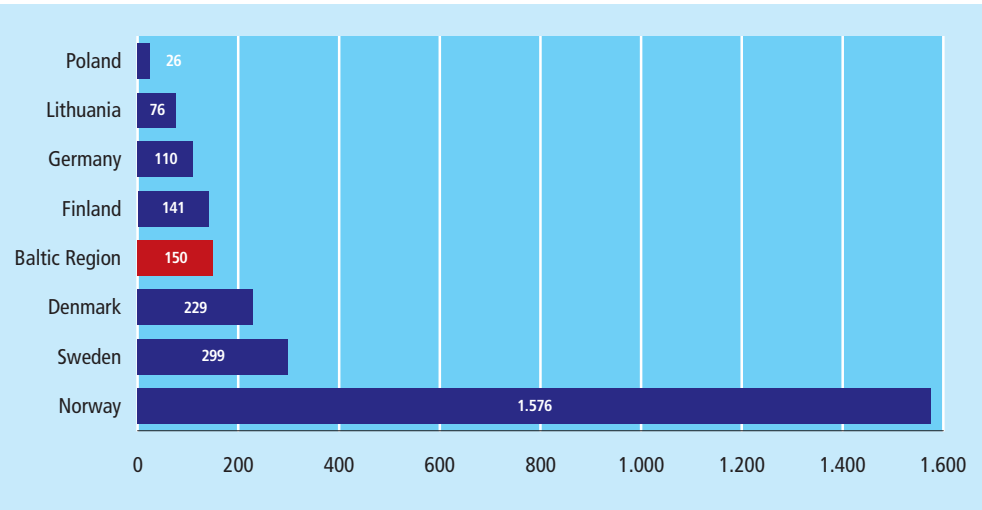


The Baltic Region average is calculated on basis of data for those countries for which data on both population and SMS are available.

50 MMS per 100 inhabitants in 2004

The possibility of sending MMS messages is still not standard on mobile phones, which is reflected in the number of MMS messages sent in the Baltic Region, cf. figure 2.6. On average 150 MMS messages were sent by each 100 inhabitants in the Baltic Region in 2004. The Norwegians are the most frequent users of MMS messages with an average of nearly 1,576 MMS per 100 inhabitants in 2004, followed by the Swedes people who sent an average of 299 MMS messages on average.

Figure 2.6 **Number of MMS messages per 100 inhabitants. 2004**



The Baltic Region average is calculated on basis of data for those countries for which data on both population and MMS are available.

3. ICT use by households and individuals

3.0 Introduction

Indicators of the e-readiness of the population

Data concerning access to new technologies as mobile phones, computer and Internet - and not least the actual use of it - are important indicators of the e-readiness of the population in the Baltic Region. The involvement of the general public in the countries of the Baltic Region in the development of the information society is measured by means of statistical indicators showing the scale of access to and usage of information and communication technologies (ICT).

Methodological information

Owing to the implementation of a common survey on ICT usage by households and individuals in the enlarged EU[1] and comparable surveys carried out in Iceland and Norway, the most important indicators on ICT use are available for the year 2004. The surveys were conducted in the first half of the year. The target population was 57,872,985 households in the entire Baltic Region with the exception of Russia, with 113,697,060 members in the age group 16-74 years.

Furthermore, information based on an ICT survey conducted by the public statistics service of Russia in 2003 is available for the first time, making it possible to publish data for all countries in the Baltic Region.

Specific parts of the data from the surveys of ICT use by households and individuals are presented in chapters 5 (e-Government), 6 (e-Security) and 7 (e-Skills and e-learning).

Average figures for the Baltic Region have been calculated taking into account the population of each country, with the exception of Russia.

Data are concentrated on the access of the population to ICT, barriers preventing use of the Internet, the frequency of computer and Internet use and the place and use of the Internet.

The access indicators relate to households with at least one member aged 16-74 years, whereas the other indicators relate to individuals aged 16-74 years.

3.1 Access to ICT at home

3.1.1 Mobile phones

On average three out of four households in the Baltic Region have access to a mobile phone

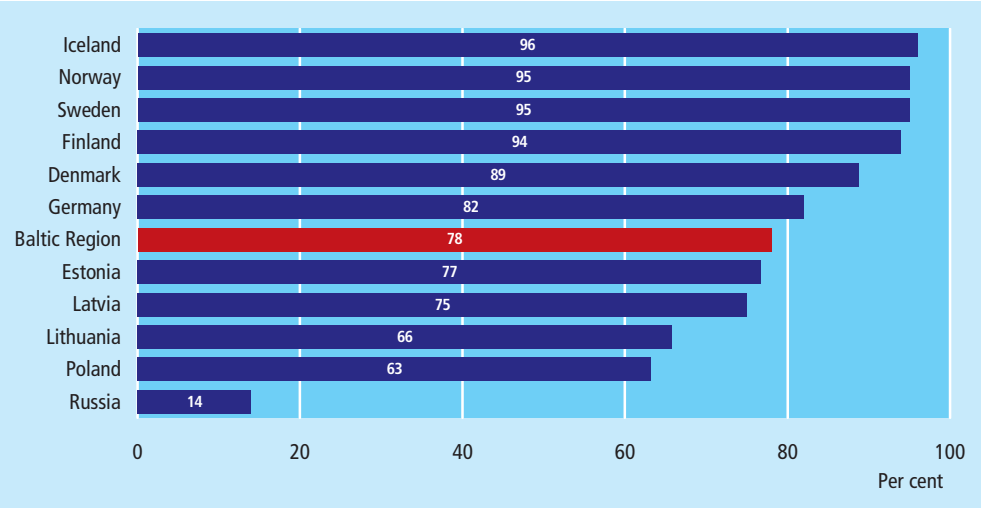
- In Poland the number of households with access to a mobile phone more than doubled from 26 per cent in 2002 to 63 per cent in 2004
- Approx. 30 million German and 8 million Polish households have access to a mobile phone

More than three out of four households in the Baltic Region have access to a mobile phone

On average 78 per cent of the households in the Baltic Region have access to a mobile phone, cf. figure 3.1, which corresponds to an estimated number of 43 million households,. The mobile phone is the most widespread ICT device in the Baltic Region, and 60 per cent or more of the households have access to it, with the exception of Russia, with a share of 14 per cent of the households having access to a mobile phone. The penetration rate is especially high in the Nordic countries, and in Iceland 96 per cent of all households have a mobile phone.

[1] More data are available on Eurostat's homepage: http://europa.eu.int/comm/eurostat, Theme Science and technology, Information society statistics.

Figure 3.1 **Access to a mobile phone at home. 2004. Per cent of households**

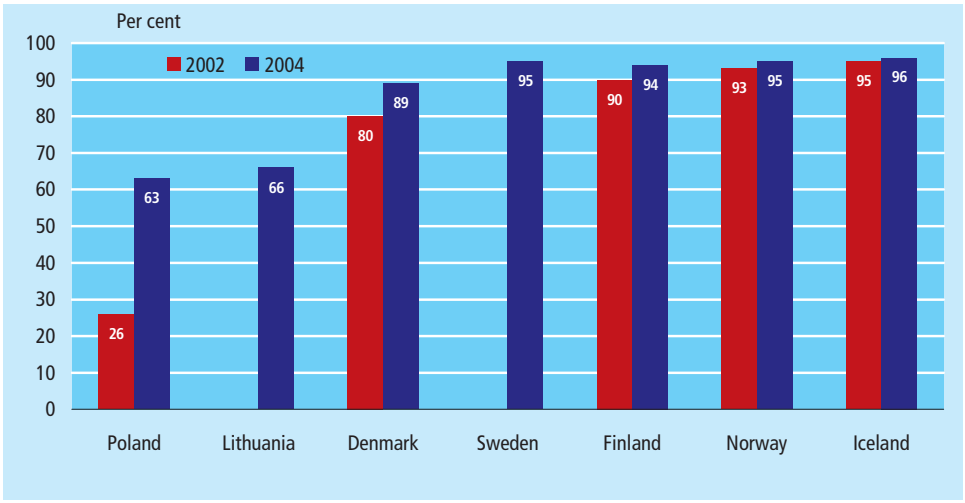


Russia: Data for 2003.
Sweden: Data for 2005.
The Baltic Region average is calculated exclusive of Russia.

Highest growth rate in mobile phone access in Poland

A comparison of the share of households with mobile phones in the years 2002 and 2004 shows that the figures for Iceland, Norway and Sweden have not changed noticeably since 2002, cf. figure 3.2, which is likely the result of the markets being close to saturation. The highest growth rate is found in Poland where mobile phones have become much more widespread in the past few years, as the share of households with access to a mobile phone has more than doubled from 26 per cent in 2001 to 63 per cent in 2004.

Figure 3.2 **Access to a mobile phone. 2002 and 2004. Per cent of households**



Poland: Data for 2001 and 2004.
Sweden: Data for 2005.

3.1.2 Computers

Approx. 60 per cent of the households in the Baltic Region have access to a computer

- In Poland the number of households with computer access has doubled since 2002
- Approx. 25 million German households have access to a computer

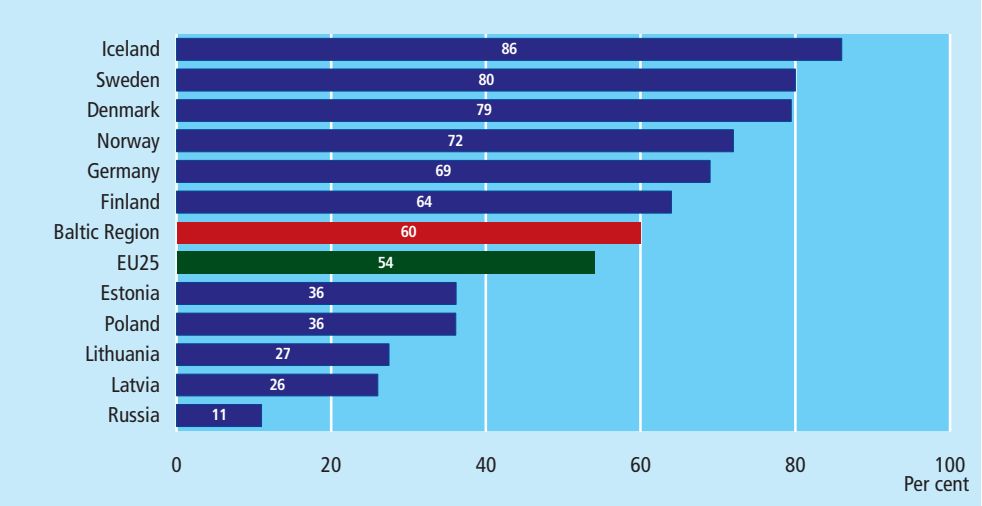
Highest access rates in the Nordic countries

On average 60 per cent of the households in the Baltic Region have access to a computer at home, calculated exclusive of Russia, compared to an EU25 average of 54 per cent, cf. figure 3.3. The computer access rates are highest in the Nordic countries, above the average for Germany, and below for Poland, Lithuania, Latvia and Estonia. The computer access rate in Russia was 11 per cent in 2003. As a rough estimate approx. 33 million households in the Baltic Region have access to a computer at home.

Access rates have grown fast in Lithuania and Poland

In those countries where the access rates were relatively low in 2002, the growth has been fast. In Poland the access rate has doubled to 36 per cent from 2002 to 2004, and in Lithuania the rate has increased by 11 percentage points to 27 per cent in 2004. In the Nordic countries the growth rates have generally been more limited, though the access rate in Sweden has increased from 75 per cent in 2002 to 84 per cent in 2004. Still there seems to be space for growth.

Figure 3.3 **Access to a computer at home. 2004. Per cent of households**



Russia: Data for 2003.
Sweden: Data for 2005.
The Baltic Region average is calculated exclusive of Russia.

3.1.3 Internet

Half of the households in the Baltic Region have access to the Internet - 8 percentage points more than in the EU25

- 81 per cent of the households in Iceland have access to the Internet

Half of the households have access to the Internet

The share of households having Internet access is on average 51 per cent in the Baltic Region, and thereby 8 percentage points higher than average for EU25, cf. figure 3.4.

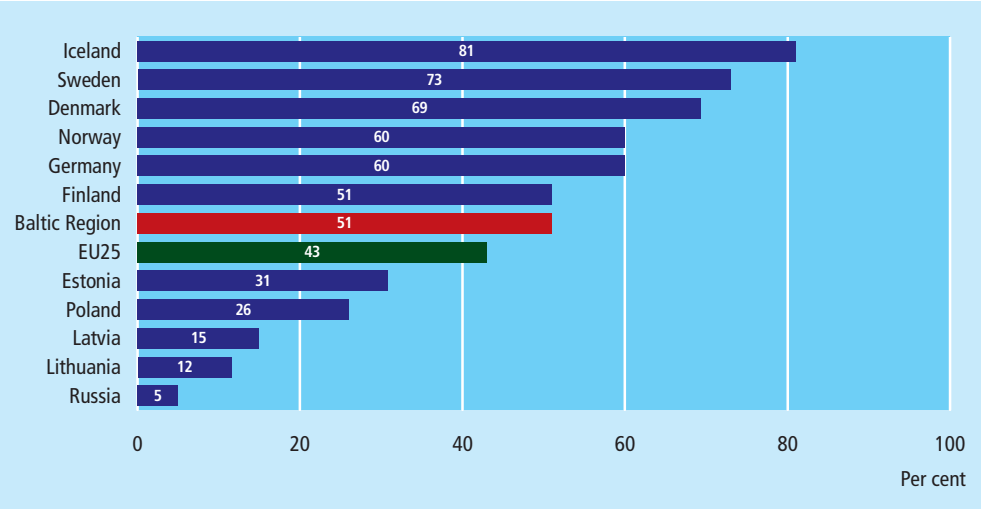
Compared to the share of households with computer, the share of households with Internet access is approx. 10 percentage points lower in the Baltic Region.

All the trends concerning computer access mentioned above can also be observed in the case of Internet access. In Denmark and Sweden, however, the Internet access rate has increased quite significantly since 2002, whereas in other Nordic countries it has remained more or less on the same level.

Space for growth in Internet access rates

Considering the three access indicators: mobile phone, computer and Internet, respectively, shows that the space for growth is biggest for Internet access.

Figure 3.4 **Access to the Internet at home. 2004. Per cent of households**



Russia: Data for 2003.
Sweden: Data for 2005
The Baltic Region average is calculated exclusive of Russia

3.1.4 Lack of Internet

High equipment and access costs are important barriers to Internet access in countries with low Internet access rates

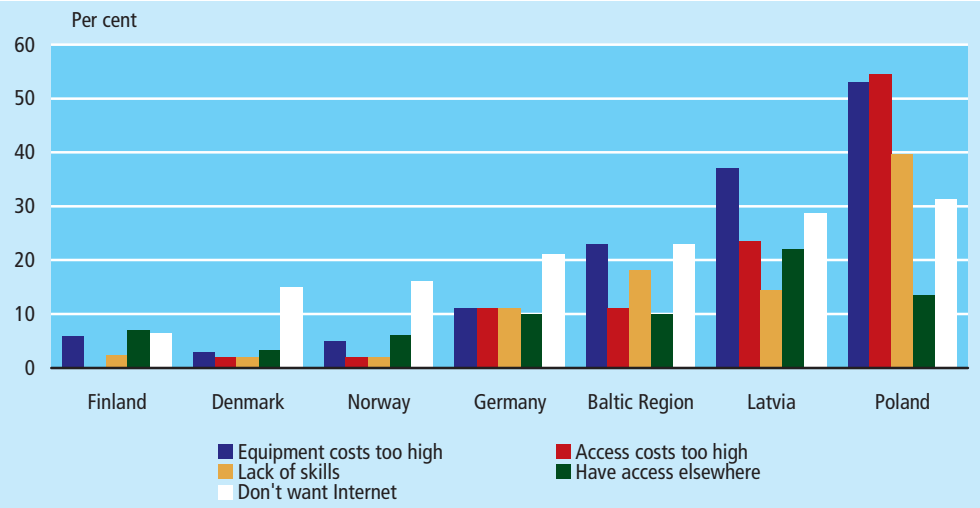
Equipment and access costs are important barriers to Internet access at home

Data concerning reasons for not having access to the Internet at home are only available for 6 of the countries of the region[2]. For the Latvian and Polish households high equipment and access costs are important barriers. In Poland more than 50 per cent of the households which do not have access to the Internet point at these costs as a barrier. In Latvia 37 per cent mention equipment costs, and 24 per cent access costs as a barrier. Another important obstacle in Poland is lack of skills, which 40 per cent indicate as a barrier.

In Denmark, Germany and Norway the most frequently mentioned reason for not having Internet access at home is lack of interest. In Latvia the main barriers to widespread Internet access are high costs of equipment and lack of interest.

[2] Data are available for Denmark, Finland, Germany, Latvia, Norway and Poland.

Figure 3.5 **Barriers to Internet access at home. 2004. Percentage of population aged 16-74 years**



The Baltic Region average is calculated as a weighted mean of the data from the 6 countries who have delivered data.

3.2 Frequency of computer and Internet usage

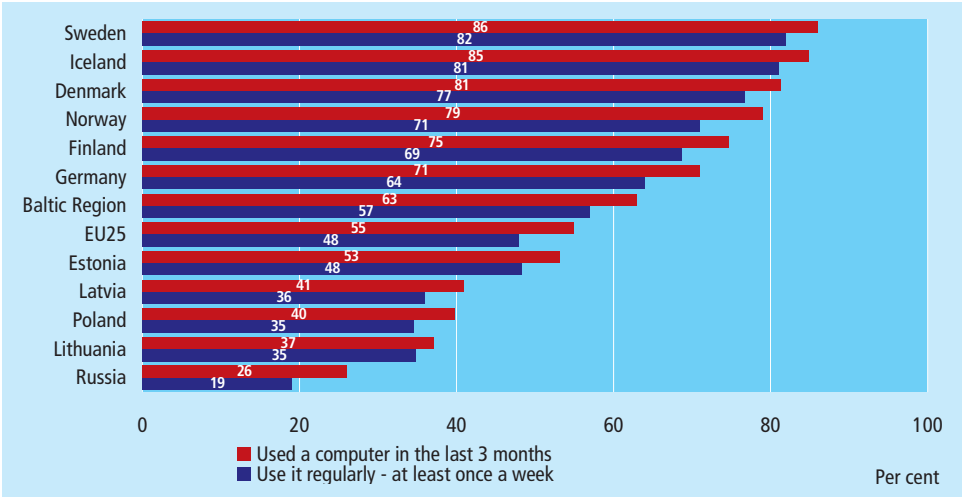
More than half of the Baltic Region population uses the Internet once a week or more –nearly 20 percentage points more than the EU25 average

– More than 60 million inhabitants in the Baltic Region use computers and Internet regularly
– The highest shares of regular computer users are found in Sweden and Iceland

The Internet is used regularly by more than half of the population in the region

In general, the pattern of the frequency of computer and Internet usage is the same in each of the countries of the Baltic Region, cf. figure 3.6 and 3.7. Most people use computers and Internet on a daily or weekly basis, and the share of regular computer users is 57 per cent for the Baltic Region as a whole, compared to 48 per cent in the EU25. Only few use it less frequently (rates between 0.4 - 8%).

Figure 3.6 **Frequency of computer use. 2004. Per cent of population aged 16-74**

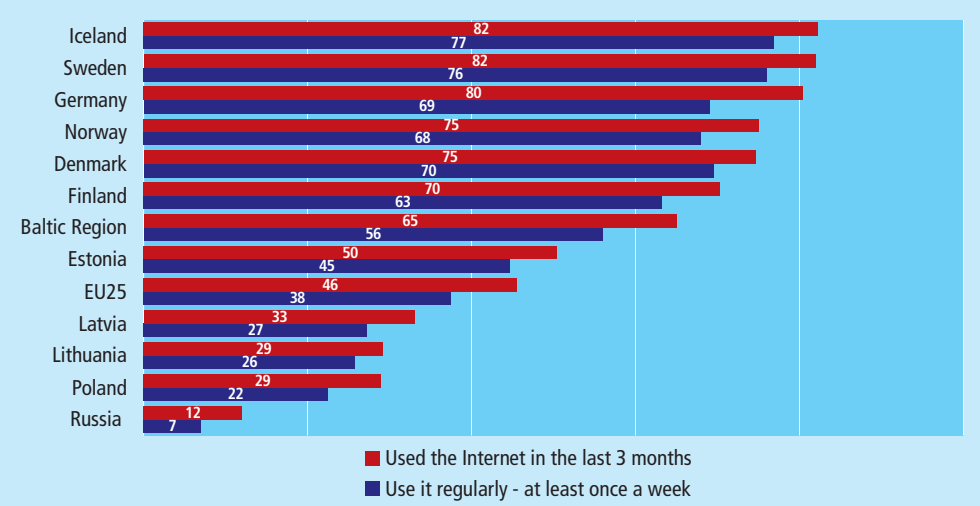


Russia: Data for 2003.
The Baltic Region average is calculated exclusive of Russia.

Higher share of regular Internet users in the Baltic Region than in the EU25

The average shares of regular computer and Internet users in the Baltic Region are almost on the same level, equalling 56 per cent and 57 per cent respectively. The average rate of regular Internet usage in the Baltic Region is nearly 20 percentage points higher than in EU25, cf. figure 3.7.

Figure 3.7 **Frequency of Internet use. 2004. Per cent of population aged 16-74**

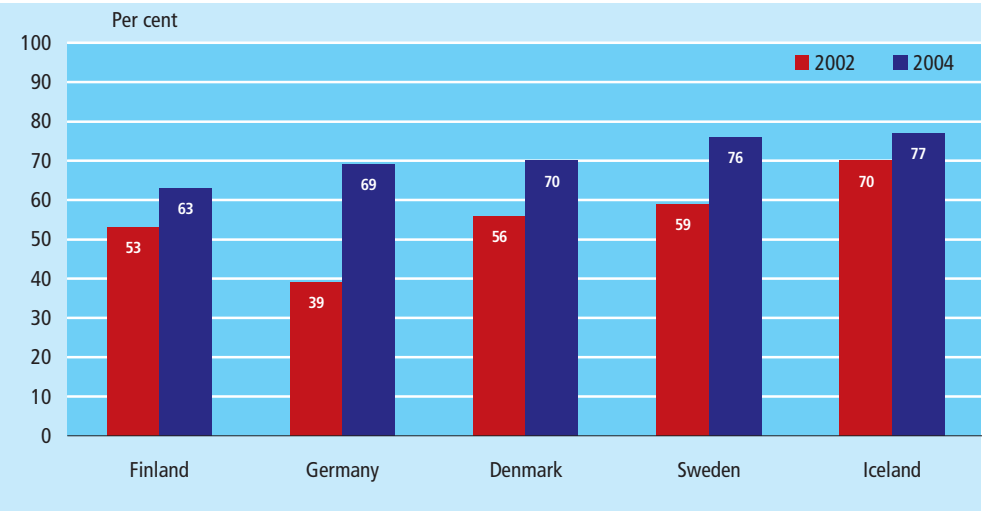


Russia: Data for 2003.
The Baltic Region average is calculated exclusive of Russia.

Considerable growth in share of regular users in Germany

All countries from which data are available for both 2002 and 2004 have seen an increased share of regular Internet users from 2002 to 2004. Especially in Germany the growth rate has been considerable, illustrated by an increase in the share of regular Internet users from 39 per cent in 2002 to 69 per cent in 2004. Iceland, whose share of regular users was highest in 2002 as well as in 2004, has had the smallest increase of 7 percentage points to 77 per cent of the population being regular Internet users in 2004.

Figure 3.8 **Share of regular Internet users. 2002 and 2004. Per cent of population aged 16-74**



3.3 Place of Internet use

The Internet is mostly accessed from home, but in the Nordic countries access often takes place from work

– Latvians use the Internet more frequently at work and in other places than at home

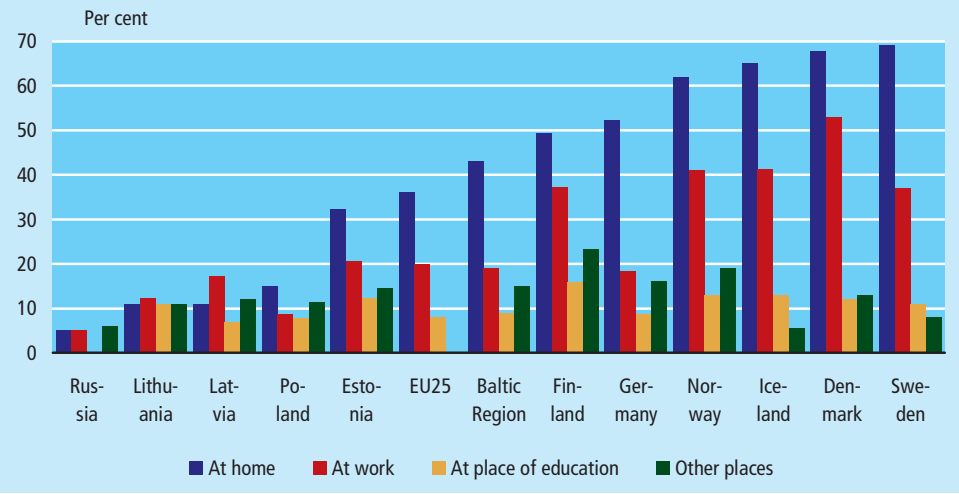
43 per cent access the Internet from home

In the Baltic Region most of the Internet users access the network from their homes - on average 43 per cent of the population aged 16-74 - but access also frequently takes place from work: 19 per cent of the Baltic Region population access the Internet from work, which is almost the same rate as for EU25[3].

The Danish population are the most frequent users at work

The Danish population are the most frequent users of the Internet at work - 53 per cent use the Internet at work, compared to an average of 19 per cent of the total population of the Baltic Region and 20 per cent of the population in EU25.

Figure 3.9 **Place of Internet use. 2004. Per cent of population aged 16-74**



Russia: Data for 2003.
The Baltic Region average is calculated exclusive of Russia.

3.4 Purposes of Internet usage

Nearly half of the population in the Baltic Region use the Internet for communication

– Reading on-line is a frequent purpose of use of the Internet for Estonians, Latvians and Lithuanians

More than 50 million people communicate via the Internet

More than 53 million people in the Baltic Region - or nearly half of the population aged 16-74 years - use the Internet to communicate with others, cf. table 3.1. In the Baltic Region as well as in the EU25 communication is the most frequent purpose of Internet use.

[3] The place of access is related to several other factors, e.g. whether computers with Internet access are available at work or place of education etc. It may also depend on the type of job you fill in, where computers are likely to be more widespread as working tools for persons working in business services, than for those who work in the manufacturing industry or in the agricultural sector.

Searching for information is another important purpose, used by 43 per cent of the population in the Baltic Region, compared to 37 per cent of the population of EU25.

25 per cent use Internet for services related to travelling

Approximately 25 per cent of the population in the region uses the Internet for services related to travelling and accomodation, for Internet banking or for purchase of goods and services[4]. In Estonia, Latvia and Lithuania reading on-line and downloading newspapers or magazines is one of the main purposes of Internet use.

There are significant differences between the countries of the region as regards the use of the Internet for different purposes, but the overall picture shows that the highest frequencies of use are found in the countries with the highest access rates.

Few use Internet banking in Poland, Lithuania and Latvia

Internet banking is used by 12 per cent or less of the populations in Poland, Latvia and Lithuania, whereas the corresponding shares in Norway and Iceland are 55 per cent and 54 per cent, respectively.

Purchasing or ordering goods and services via the Internet is not a very frequent use in Estonia, Latvia, Lithuania and Poland, as less than one out of ten used the Internet for this purpose. In Germany and Norway 32 per cent and 31 per cent of the populations, respectively, use the Internet for purchasing or ordering goods and services.

It is likely that there is a correlation between the supply, or availability, of services and the use of it. Generally the purposes of Internet use are closely connected with affluence, which together with low or high rates of Internet access explains some of the differences.

Table 3.1 **Purposes of Internet usage. 2004. Per cent of population aged 16-74**

	Communi-cation	Finding informa-tion about goods and services	Using services related to travel and accom-modation	Internet banking	Purcha-sing/ ordering goods or services	Reading/ down-loading online news-papers/ news magazines	Playing/ down-loading games, images or music
	per cent						
Poland	24	15	8	4	4	14	14
Lithuania	25	15	5	7	1	21	15
Estonia	39	32	n.a.	35	9	38	20
Latvia	41	19	9	12	2	19	16
EU25	41	37	23	18	17	18	17
Baltic Region	**47**	**43**	**25**	**24**	**23**	**19**	**16**
Germany	52	52	32	26	32	15	15
Finland	63	59	42	50	26	37	38
Sweden	65	59	29	40	27	28	23
Denmark	65	59	32	45	22	36	19
Norway	66	62	40	55	31	56	23
Iceland	75	72	51	54	28	61	34

The Baltic Region average is calculated exclusive of Russia.

[4] The purposes for which the Internet is used are likely to be related to the supply of options, e.g. Internet banking will only be used if the service is available. The same applies to purchases via the Internet: even if the Internet is a global market place, some people will prefer using national suppliers or suppliers with homepages in the national language.

3.5 On-line purchases

Large variations in on-line purchases among the countries of the Baltic Region

– Space for growth in the e-commerce markets of the Baltic Region

The German and Norwegian populations are the most frequent e-purchasers

The share of the population using the Internet for e-purchasing varies considerably more than the levels of Internet access and usage between the countries of the Baltic Region. The share if e-purchasers is highest in Germany and Norway (32% and 31%) and lowest in Lithuania, Latvia and Poland (less than 5 per cent)[5]. The explanation of this phenomenon should be sought in differences in the local/national conditions (the presence or lack of multiple and suitably diversified offers from retailers, the experience of customers in such transactions, trust matters etc.). Regardless of these reasons, there seems to be a growth potential in the e-commerce market in the Baltic Region.

Table 3.2

Goods and services commonly purchased via the Internet[6]. 2004. Per cent of population aged 16-74[7]

	Books, magazines etc.	Clothes, sports goods	Films, music	Travel and holiday accommodation	Tickets for events
	per cent				
Lithuania	0	0	0	0	0
Latvia	1	0	0	0	0
Poland	2	1	1	0	0
Finland	5	8	5	7	6
EU25	8	7	7	6	5
Denmark	10	12	9	14	16
Baltic Region	**11**	**9**	**6**	**6**	**5**
Iceland	14	7	9	24	5
Norway	14	10	11	25	17
Germany	16	13	8	6	5

Books and magazines are generally popular purchases

The goods most frequently purchased are books and magazines, which approx. 11 per cent of the population in the Baltic Region have purchased via the Internet, cf. table 3.2.

There are many variations in the e-purchasing pattern among the countries of the region: In Finland clothes and sports goods are frequent objects of e-purchasing (8 per cent of the population), but also travel and holiday accommodation (7 per cent). The Danish population most often buy tickets for events when they purchase on the Internet (14 per cent), whereas nearly one quarter of the Icelandic and Norwegian populations have purchased travel and holiday accommodation via the Internet.

E-purchasing is not very common in Lithuania, Latvia and Poland

Generally less than 1 per cent of the population in Lithuania, Latvia and Poland have used the Internet for e-purchasing, indicating that this is not yet a common purpose of Internet use.

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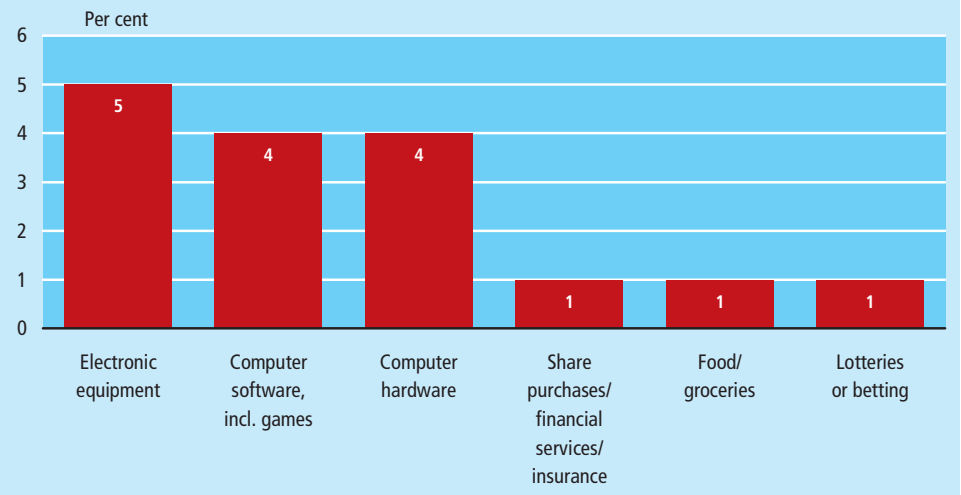
[6] In the survey of households and individuals use of ICT the following goods and services were specified as options: Films/ music, Books/ Magazines/ Newspapers/ e-learning material, Clothes/ sports goods, Electronic equipment (incl. cameras), Travel and holiday accommodation.

[7] Data only available for Denmark, Finland, Germany, Iceland and Norway.

The less commonly purchased goods were electronic equipment, purchased by 5 per cent of the Baltic Region population, and computer hardware and software (4% each). Food and groceries, financial services other than banking and lottery tickets and betting were all purchased by the same share of the population, namely 1 per cent.

Figure 3.10 **Goods and services less commonly purchased via Internet. Baltic Region average. 2004. Per cent of population aged 16-74**



The Baltic Region average is calculated exclusive of Russia.

4. ICT use by enterprises

4.0 Introduction

The impact of ICT on the performance and competitiveness of enterprises is achieved through increased information flows, which result in knowledge transfer as well as improved organisation. ICT has become an important tool for improving production capacity and increasing international competitiveness by reducing the transaction costs involved in the production and exchange of goods and services, by increasing the efficiency of management functions, and by enabling firms to exchange and access more information. While ICT improves productivity in existing productive activities, it also makes possible the emergence of new activities such as on-line outsourcing of services and the production of different types of ICT goods.

ICT is used for many types of business processes and on different levels of integration

The adoption of ICT by enterprises has grown considerably over the past few years, with more and more firms connecting to the Internet. Internet use may range from simple website presence to the complete integration of business functions. Enterprises use ICT for internal automation, for example office and production processes, for customer relations and supply chain management, or for the management of distribution and logistics networks.

Methodological information

Data for this chapter are provided by surveys of ICT use by enterprises carried out by the national statistical institutions. For most countries (excluding Russia) these surveys have been carried out within the common EU framework of surveys concerning the use of ICT in enterprises[1].

The data generally refer to 2004, but for Iceland and Russia to 2003. Data on e-commerce are for the year before the reference year, i.e. in most cases for 2003.

The data cover enterprises with 10 or more employees.

The Baltic Region averages are calculated on the basis of those countries for which data are available.

Specific parts of the data from the surveys of ICT use by enterprises are presented in chapters 5 (e-Government), 6 (e-Security) and 7 (e-Skills and e-learning).

Data concern PC and Internet use, purposes of ICT use, the availability and use of homepages and e-Commerce.

4.1 PC and Internet usage in enterprises

More than nine in ten enterprises in the Baltic Region use computers, and eight in ten use the Internet

- 94 per cent of the Baltic Regions' enterprises use computers
- The biggest increase of Internet use is seen in less advanced countries, who are expected to catch up on leading countries in the near future

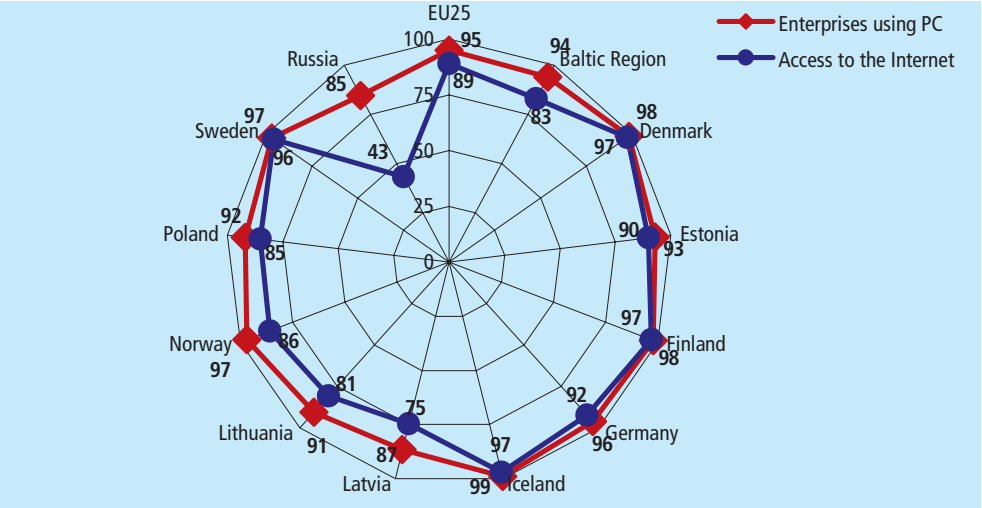
Computers are basic tools of the Information Society in the Baltic Region

Computer use is widespread indeed in business enterprises today in the Baltic Region. At the beginning of 2004 approx. 670,000 enterprises in the Baltic Region used computers, and the average share of enterprises using computers in the region was 94 per cent, cf. figure 4.1. The share of enterprises using computers in the Baltic Region ranges from 85 per cent in Russia to 99 per cent in Iceland. The shares in the new EU

[1] More data are available on Eurostat's homepage: http://europa.eu.int/comm/eurostat, Theme Science and technology, Information society statistics.

member countries and Russia are lower than the EU25 average, whereas the shares in the other countries of the Baltic Region are higher than the EU25 average.

Figure 4.1 **Share of enterprises using computers and Internet. 2004**



Iceland and Russia: Data for 2003.

The average Internet access rate of the region is 83 per cent

For enterprises the Internet is an important tool for information search and dissemination. The share of enterprises having access to the Internet in the Baltic Region is generally high, but the levels in the individual countries are distributed more unevenly than the computer usage levels, cf. figure 4.1. The average Internet access in the Baltic Region is 83 per cent, which is lower than the EU25 average (89%). Calculated exclusive of Russia, however, the average Internet access rate in the Baltic Region is 91 per cent, and thereby 2 percentage points higher than the EU25 average.

High access rates in the Nordic countries

6 out of 11 Baltic Region countries have higher Internet access rates than the EU25 average. In Denmark, Finland, Iceland and Sweden more than 95 per cent of the enterprises have access to the Internet. In the new EU member countries the penetration rate is between 75 and 90 per cent. In Latvia 3 out of 4 enterprises have Internet access, whereas in Russia less than 44 per cent of the enterprises have access to the Internet. The access growth in countries with lower access rates is between 10-20 per cent and they are believed to catch up with the Nordic countries in the near future.

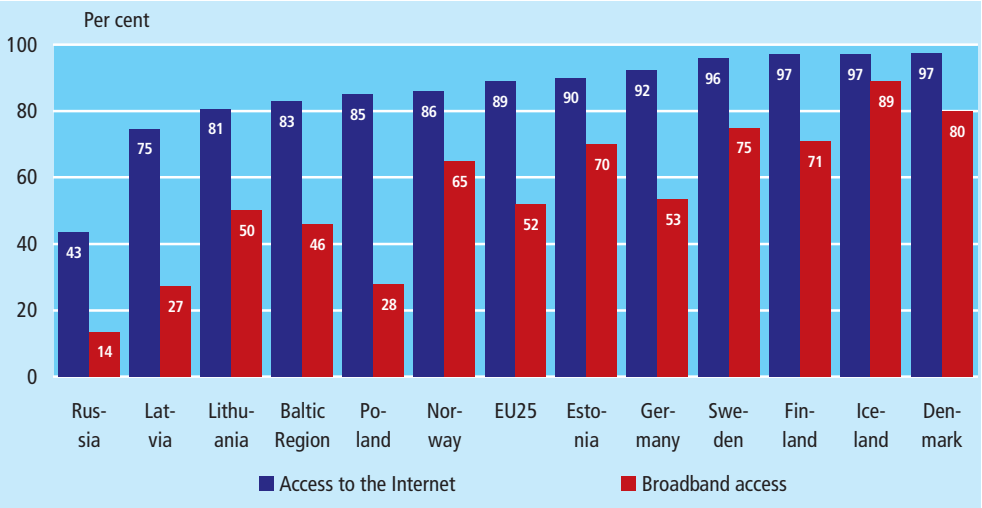
Broadband access in enterprises

- Only in four countries in the Baltic Region the level of broadband access is lower than the EU25 average
- Denmark and Iceland are leaders of broadband access

The average broadband penetration in the Baltic Region is 46 per cent

High-speed connection to the Internet (broadband access) is the basis of more efficient Internet usage. The average broadband penetration in the Baltic Region is 46 per cent, which is 6 per cent lower than the EU25 average (52%), cf. figure 4.2. Only in four countries the share of enterprises connected to the Internet through broadband access is lower than the EU25 average, though. In Russia only 14 per cent and in Latvia only 27 per cent of enterprises have broadband connections.

Figure 4.2 **Share of enterprises with broadband connection. 2004**



Iceland and Russia: Data for 2003.

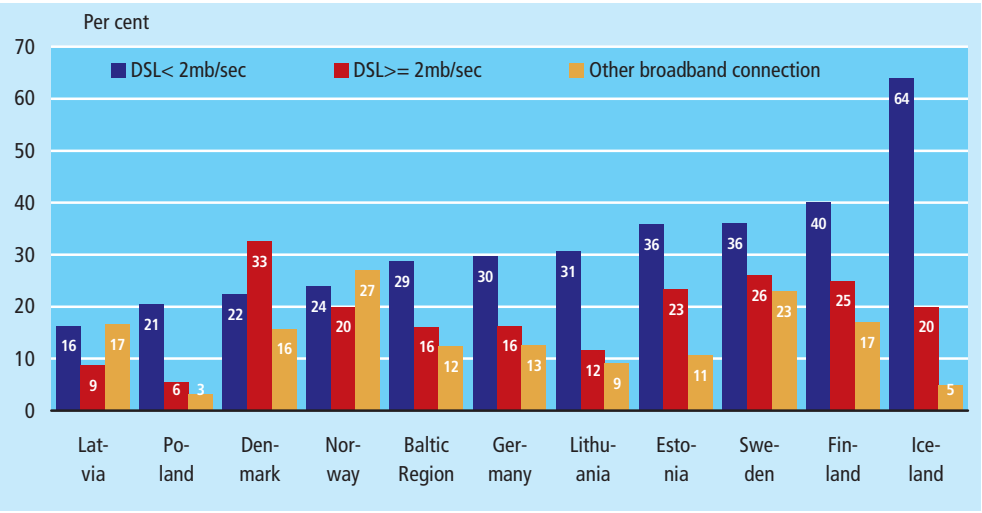
The German and Lithuanian access rates are similar to the EU25 average of 52 per cent, with 53 and 51 per cent, respectively, of the enterprises using broadband access to the Internet. The average calculated exclusive of Russia is 53 per cent, and slightly higher than the EU25 average.

– One third of the Danish enterprises have a DSL >=2 Mb/sec connection
– In Latvia and Norway other broadband technologies than DSL are used more frequently

Roughly 330,000 enterprises in the region use broadband connections

Approx. 330,000 enterprises in the Baltic Region use broadband Internet connections. Iceland is by far the country where the most enterprises have high-speed access, cf. figure 4.3, with a total of 89 per cent (37 percentage points above the Baltic Region average), followed by Denmark, Sweden, Finland and Estonia with shares ranging from 80 to 70 per cent.

Figure 4.3 **Share of enterprises with broadband connections distributed by type. 2004**



Iceland: Data for 2003.
Russia: No data available.

Only in Latvia and Norway other broadband technologies are more widespread than DSL

One-third of the Danish enterprises have a DSL >=2 Mb/sec connection - it is the highest share of the Baltic Region countries, and twice as high as the average of the Baltic Region. Denmark is the only country where the use of DSL >=2 Mb/sec is more widespread than DSL < 2Mb/sec. In most countries the basic broadband connection is DSL technologies, but in Latvia and Norway other broadband technologies (e.g. cable) are more widespread than DSL, with shares of 17 and 27 per cent, respectively.

4.2 Purpose of ICT use in enterprises

4.2.1 Purpose of Internet use

65 per cent of the enterprises use the Internet for banking and financial services

- 59 per cent of the German enterprises use the Internet for market monitoring
- 63 per cent of the Swedish enterprises received digital products via the Internet

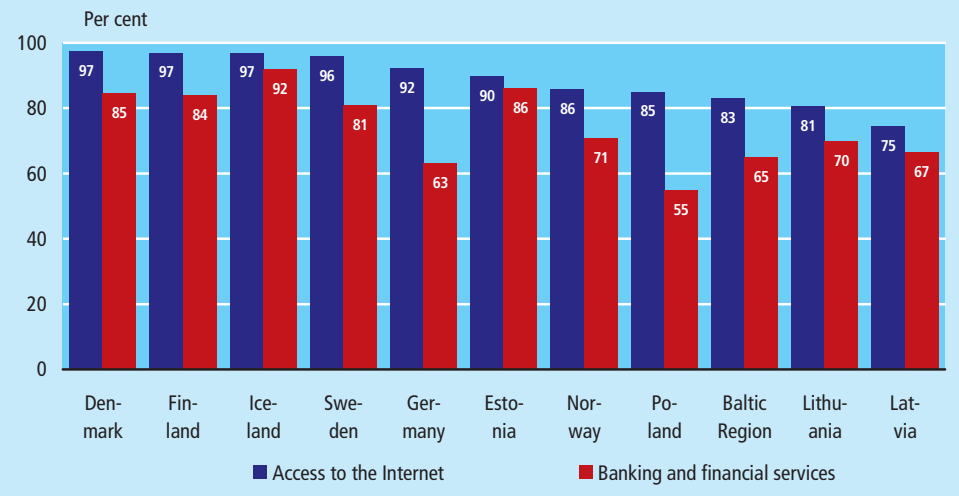
From data conc. availability to data on the purpose of use

The availability of Internet access is one part of the Information Society picture, but the more widespread the availability becomes, the more focus can be put on the actual purposes for which the Internet is used.

The Internet is frequently used by enterprises for banking and financial services

Besides the general use of the Internet for purposes of information search and dissemination, a frequent use is for banking and financial services, cf. figure 4.4. Approx. 381,000 Baltic Region enterprises (65%) use the Internet for banking and financial services. Nine in ten enterprises in Iceland (92%) use the Internet for banking and other financial services. In the other countries of the region the share of enterprises, which use the Internet for this purpose ranges from 55 per cent in Poland to 86 per cent in Estonia.

Figure 4.4 **Share of enterprises using the Internet use for banking and financial services. 2004**



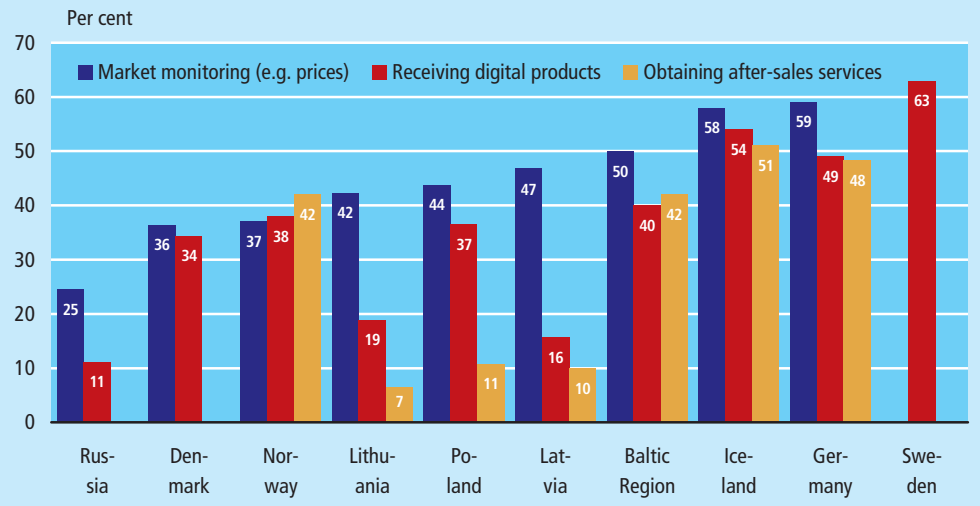
Iceland: Data for 2003.
Russia: No data available.
Sweden: The wording in the Swedish questionnaire was: *Financial transactions.*

German enterprises are the most frequent users of the Internet for market monitoring

To monitor the market, receive digital products and obtain after sales services are other important purposes of Internet use for the enterprises. The share of enterprises which use the Internet for market monitoring varies from 36-37 per cent in Denmark and Norway to 58-59 per cent in Germany and Iceland, cf. figure 4.5. The average of

the new EU member countries is approximately 45 per cent, and in Russia only 25 per cent of the enterprises use the Internet for market monitoring. During 2004 63 per cent of the Swedish enterprises, 54 per cent of the Icelandic enterprises and 49 per cent of the German enterprises received digital products via the Internet.

Figure 4.5 **Share of enterprises using the Internet for other purposes. 2004**



Iceland and Russia: Data for 2003.
Denmark, Estonia, Finland, Sweden and Russia: No data available concerning the obtaining of after-sales services.
Estonia, Finland and Sweden: No data available concerning market monitoring.
Estonia and Finland: No data available concerning the reception of digital products .

Some interesting facts relate to the use of the Internet for obtaining after-sales services[2]: In Germany, Iceland and Norway obtaining after-sales services is a quite important purpose of Internet usage in the enterprises. In Iceland 51 per cent, in Germany 48 per cent, and in Norway 42 per cent of the enterprises obtain after sales services via the Internet.

4.2.2 Use of internal ICT systems in enterprises

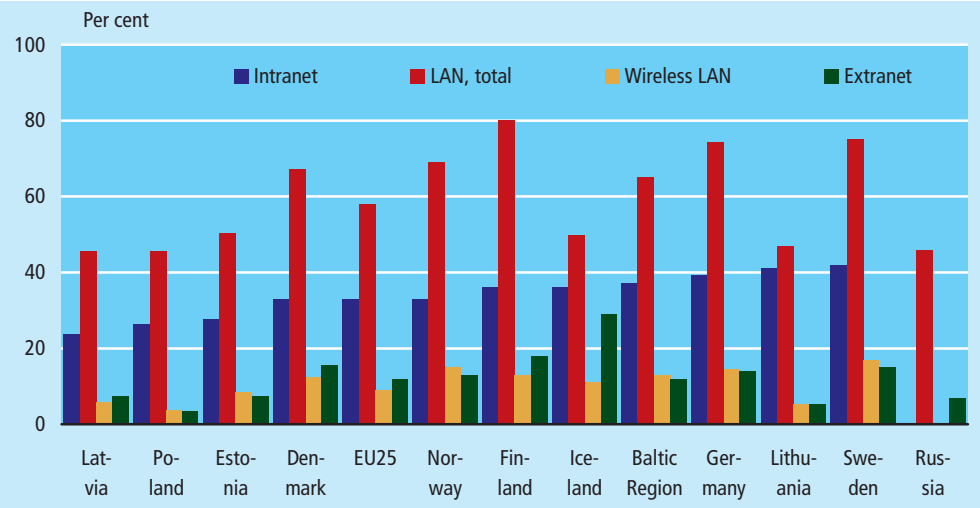
- 65 per cent of the enterprises in the Baltic Region have LAN, which is 7 percentage points higher than the EU25 average
- In Finland 80 per cent of the enterprises have LAN
- Intranet is most widespread in Sweden and Lithuania
- 29 per cent of the enterprises in Iceland use Extranet

LAN is a widespread information and communication technology in the Baltic Region

Local area networks (LAN) - networks for communication between enterprise computers – are the most widespread of the internal information and communication technologies in the Baltic Region enterprises. 65 per cent of the Baltic Region enterprises use LAN, and 13 per cent use wireless LAN, cf. figure 4.6. The use of LAN technologies in the Baltic Region is 7 percentage points higher - and wireless LAN 4 percentage points higher - than the EU25 average. The leading countries are Finland (80%), Sweden (75%) and Germany (74%).

[2] Data are only available for few countries, as Estonia, Finland, Sweden and Russia do not include this question in their national ICT surveys.

Figure 4.6 **Share of enterprises using internal ICT networks distributed by type. 2004**



Iceland and Russia: Data for 2003.

Intranet solutions are used by 37 per cent of the enterprises in the region

Intranet - internal communications networks using Internet protocol - is most popular in Sweden and Lithuania, where 42 per cent and 41 per cent of the enterprises use it, cf. figure 4.6. The shares of enterprises using Intranet in these countries are approximately 5 percentage points higher than the Baltic Region average of 37 per cent, and 8-9 percentage points higher than the EU25 average of 33 per cent.

12 per cent use Extranet – same share as the EU25 average

The general use of Extranet (extension of Intranet to access by external users) in the Baltic Region is similar to the EU25 average of 12 per cent. In the Nordic countries 13-18 per cent - and in the new EU countries 3-7 per cent - of the enterprises use Extranet. Iceland has a remarkably high share of enterprises using Extranet (29 %).

4.2.3 Remote access to enterprises' ICT systems

- 16 per cent of the Baltic Region enterprises make use of teleworking, which is 5 percentage points higher than the EU25 level
- In Denmark 45 per cent of the enterprises use ICT teleworking

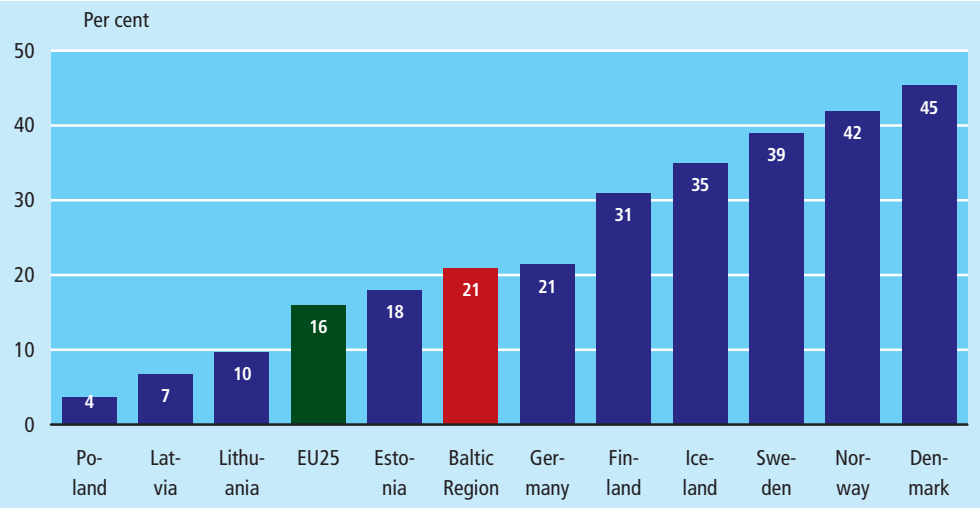
Teleworking –a facility provided by the new technologies

The new technologies provide a range of facilities, an important one being the possibility for persons to work away from the premises of the enterprises and to access the enterprise's ICT systems from there. Teleworking is not restricted to working from home, however; it is mobile and distributed, and hence no longer limited to time or place. 21 per cent - or approx. 125,000 enterprises in the Baltic Region - use teleworking, which are 5 percentage points higher than the EU25 average of 16 per cent, cf. figure 4.7.

Danish enterprises are the most frequent users of teleworking

In Denmark 45 per cent of the enterprises employ persons who are teleworking, which is the highest level in the Baltic Region as well as in the EU25. Also other Nordic countries - Norway with 42 per cent, Sweden with 39 per cent and Iceland with 35 per cent of the enterprises using teleworking have high levels, more than twice as high as the EU25 average.

Figure 4.7 **Share of enterprises employing persons who are teleworking. 2004**



Iceland: Data for 2003.
Russia: No data available.

Teleworking is not yet common in the new EU countries

Teleworking is still not common in the new EU countries: In Poland, Latvia and Lithuania the shares of enterprises making use of teleworking - from 4 to 10 per cent - are lower than the average for EU25, which is 16 per cent. Only in Estonia it is slightly higher than the EU25 average with a share of 18 per cent.

4.3 Homepages –the enterpri se face on the Internet

4.3.1 Share of enterprises with own homepages

Approx. 420,000 enterprises in the Baltic Region have homepages

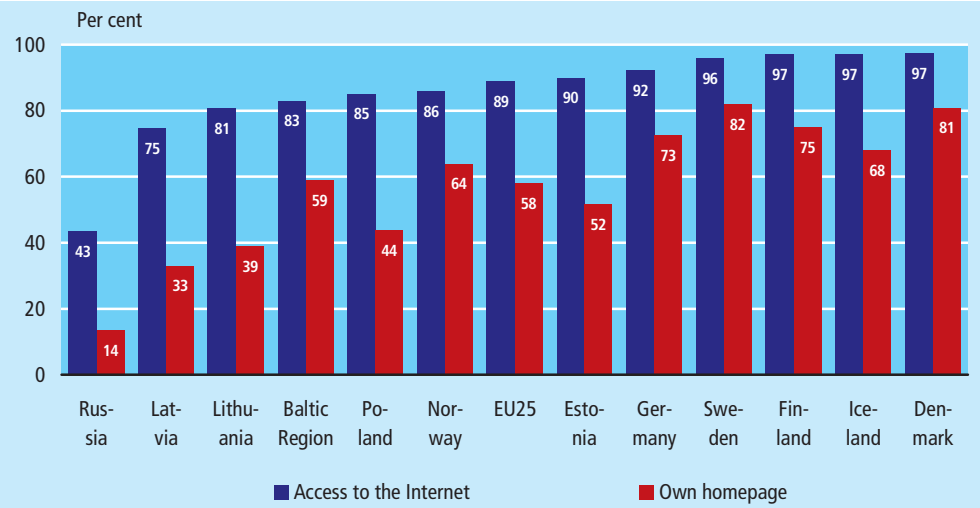
- The share of enterprises with homepages in the Baltic Region is 59 per cent and similar to the EU25 average
- Only 14 per cent of the Russian enterprises have own homepages

Homepages are frequently used by the Baltic Region enterprises

The enterprises in the Baltic Region do not only use the Internet for receiving information, but for offering information, too. One way of presenting information via the Internet is homepages (websites). A website is the online platform through which the enterprise can import information as well as present and sell its products via the Internet.

At the beginning of 2004 approximately 420,000 Baltic Region enterprises (59%) had their own websites on the Internet, corresponding to the EU25 average of 58 per cent, cf. figure 4.8. Only 14 per cent of the enterprises in Russia have their own homepages. If the Baltic Region average is calculated without Russia, the average share of enterprises having own homepages is 68 per cent or 10 percentage points above the EU25 average.

Figure 4.8 **Share of enterprises with own homepages. 2004**



Iceland and Russia: Data for 2003.

8 in 10 Swedish and Danish enterprises have own homepages

The proportion of enterprises with their own homepages was highest in Sweden and Denmark (81-82%) and exceeds the EU25 average by more than 20 percentage points. In Estonia and Norway the corresponding shares are 52 and 64 per cent, which is close to the EU25 average of 58 per cent. In Latvia and Lithuania the shares of enterprises with homepages are 33 and 39 per cent - or 20 percentage points lower than the EU25 average.

In the new EU member countries the difference in shares between enterprises with Internet and with homepages is between 38 and 42 per cent. Thus, at this time enterprise homepages are not very widespread in Estonia, Latvia, Lithuania and Poland.

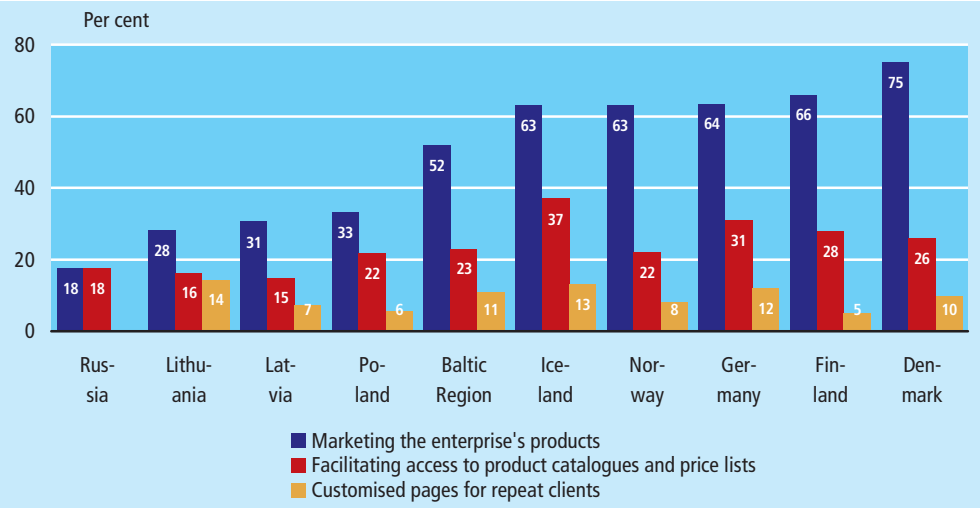
4.3.2 Facilities of the enterprise's websites

- 52 per cent of the enterprises use homepages for marketing of products
- 37 per cent of the German enterprises provide after sales support via homepages
- 14 per cent of the Lithuanian enterprises have customised pages for clients
- In Norway 13 per cent of the enterprises provide mobile Internet services

Homepages are primarily used for marketing purposes

The most common use of homepages in all of the Baltic Region countries, like in other countries, is for marketing of products or services. Just over half of the Baltic Region enterprises (52% or 351,000 enterprises) dedicate homepages to marketing of their products via the Internet, cf. figure 4.9. Denmark is the country where by far the most enterprises (75 per cent) are marketing their products, followed by Finland, Germany, Iceland and Norway with shares ranging from 66 to 63 per cent.

Figure 4.9 **Share of enterprises using the homepages for marketing of products. 2004**



Iceland and Russia: Data for 2003.
Estonia and Sweden: No data available.

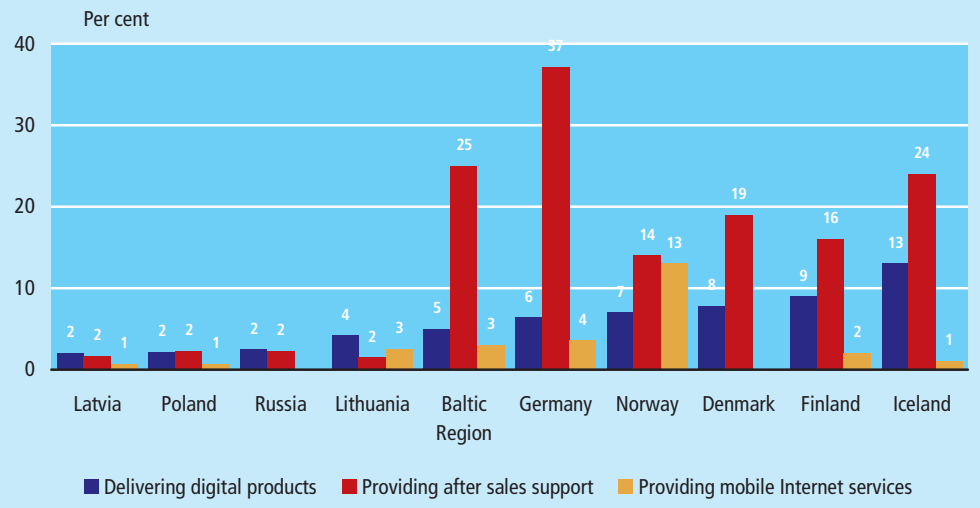
23 per cent use websites to display product catalogues and price lists

From 15 per cent of the enterprises in Latvia to 37 per cent in Iceland use their websites for displaying product catalogues and price lists, compared to an average of 23 per cent in the Baltic Region. Only in Latvia, Lithuania and Russia less than 20 per cent of the enterprises presented products catalogues and price lists on their websites.

Customized homepages are mostly used in Lithuania, Iceland and Germany

In Lithuania, Iceland and Germany customized homepages for regular clients are more frequently used than in other countries of the region - 14 per cent of the enterprises in Lithuania, 13 per cent in Iceland, and 12 per cent in Germany have such customized homepages. In other countries this share is varying between 5 and 10 per cent.

Figure 4.10 **Share of enterprises using the homepages for after sales support. 2004**



Iceland and Russia: Data for 2003.
Estonia and Sweden: No data available.

The use of Internet to provide after sales support differs widely among the countries

There are large variations among the countries of the Baltic region in the shares of enterprises that provide after sales support via Internet homepages, cf. figure 4.10. In Germany, Iceland and Denmark the shares are 37 per cent, 24 per cent and 19 per cent, respectively, whereas in Latvia, Lithuania and Poland only 2 per cent of the enterprises provided after sale support via homepages. In Germany the provision of

after sales support is the second most used facility of homepages, after marketing of products. More than 90 per cent of the Baltic Region enterprises, which provide after sale support, are situated in Germany.

Delivery of digital products and use of mobile services is not yet widespread

Only a limited number of enterprises deliver digital products and provide mobile services via Internet websites. The proportion of enterprises delivering products in electronic form via homepages was between 2 per cent (in Latvia and Poland) and 13 per cent in Iceland. Only 2-4 per cent of the enterprises had homepages supporting mobile access.

4.4 e-Commerce in the Baltic Region

Turnover from e-Commerce in Baltic Region of approx. 517 billion euro in 2003

- 5 per cent of the Baltic Region countries use networks others than Internet for e-Commerce
- More than 50 per cent of the enterprises in the Nordic countries ordered products via Internet
- 71 per cent of the Finnish enterprises ordered products via Internet

4.4.1 e-Commerce via the Internet[3]

E-commerce is part of the digitization of the economy

Electronic commerce is a part of the wider process of digitization of the economy, and a major business innovation. e-Commerce has the potential to affect user's behaviour, business processes and the socio-economic system, and therefore has always attracted the attention of policy makers.

e-Commerce is widespread in the Baltic Region

e-Commerce via the Internet is quite widespread in the Baltic Region, especially in the Nordic countries and Germany, cf. figure 4.11. 39 per cent of the Baltic Region enterprises purchased products via the Internet, which are 12 percentage points more than the EU25 average of 27 per cent. In Finland 71 per cent of the enterprises, in Sweden 68 per cent, in Denmark 58 per cent and in Norway 51 per cent of enterprises purchase goods or services via the Internet. Iceland is the leader in share of enterprises using PC and Internet, but e-Commerce is not widespread among the Icelandic enterprises: only 12 per cent have purchased via the Internet and 6 per cent have received orders via the Internet.

The share of Baltic Region enterprises which receive orders via the Internet is 14 per cent, and similar to the EU25 average of 13 per cent.

[3] Eurostat has applied a threshold of 1% when counting enterprises buying or selling over the Internet. This limit was not requested for the data for this NeDAP publication. E.g. the relatively large difference between the Danish, Finnnish, Swedish and Norwegian percentages for buying is due to the fact that about 1/2 of the enterprises who purchased did not know the per cent of the purchases. These enterprises are included in this publication. Therefore the low EU-number.
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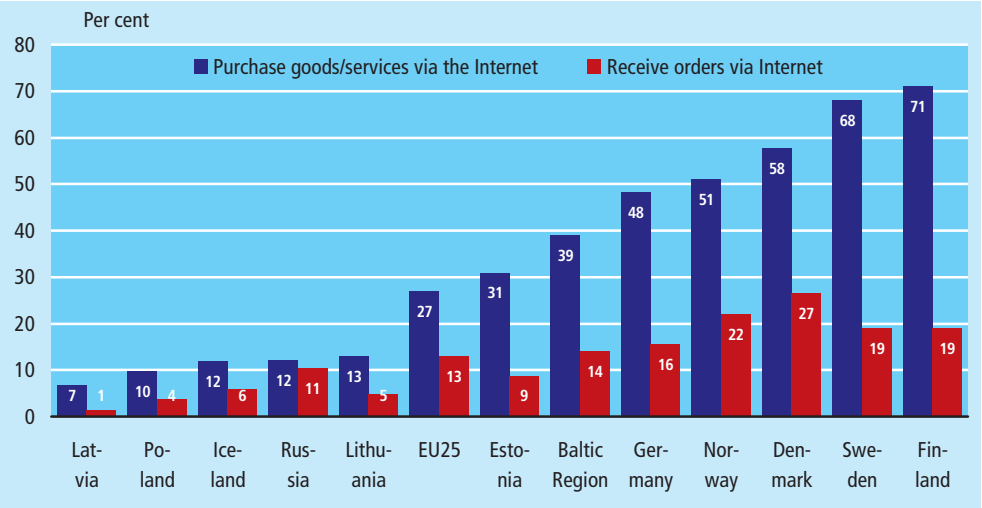
Figure 4.11 **Share of enterprises purchasing and receiving orders via the Internet. 2003**



Iceland and Russia: Data for 2003.

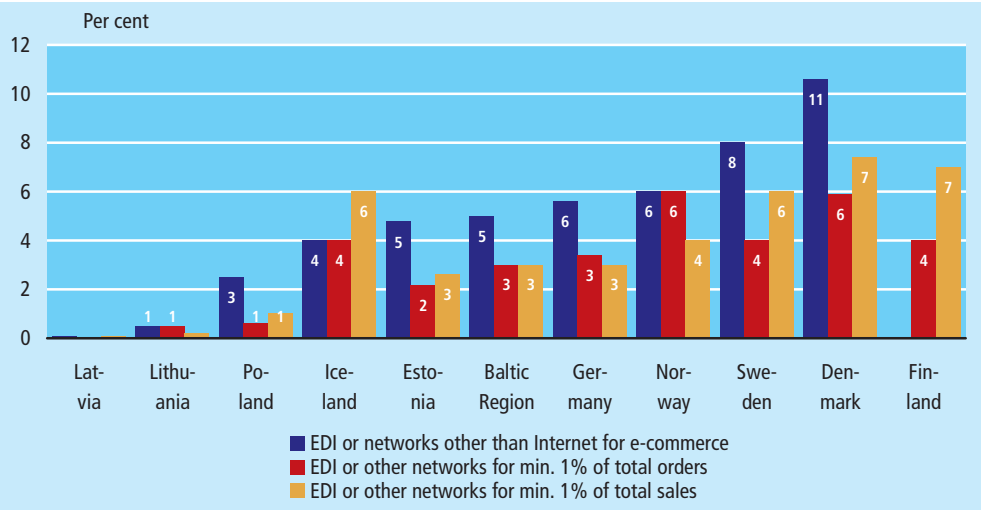
In the eastern part of the Baltic Region e-Commerce is not frequently used. Only 7-13 per cent of the enterprises have purchased goods or services via the Internet and 1-10 per cent have received orders. Only in Estonia the share is relatively high with 31 per cent of the enterprises purchasing products or services via the Internet.

4.4.2 e-Commerce via EDI or networks other than Internet

EDI and other networks than Internet is less frequently used for e-Commerce

e-Commerce via EDI or networks other than the Internet is less frequently used than e-commerce via the Internet. Only 5 per cent of the Baltic Region enterprises use networks other than the Internet for commercial purposes, cf. figure 4.12. The percentage of enterprises which use other networks for orders is varying between 4-6 per cent in the Nordic countries and less than 4 per cent in the other Baltic countries. The share of enterprises which use other networks for sales is slightly higher in Denmark, Finland, Iceland and Sweden (6-7 per cent), than in the other countries of the region (4 per cent).

Figure 4.12 **Share of enterprises using EDI or networks other than Internet for e-Commerce. 2003**



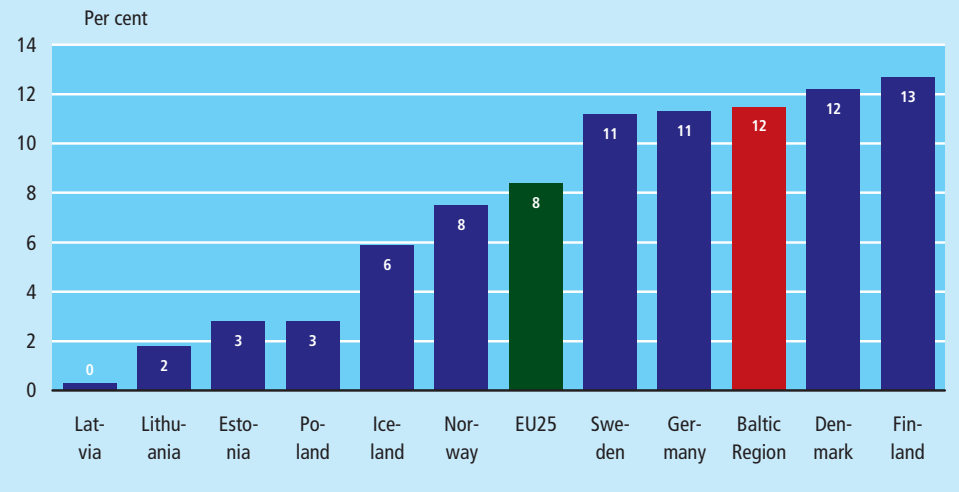
Iceland: Data for 2003.
Latvia: Actual figures are not presented as they are less than 0.5 per cent (0.1, 0.0 and 0.1, respectively).
Russia: No data available.

4.4.3 Enterprises turnover from e-Commerce

The value of e-Commerce in the region is estimated to approx. 517 billion euro in 2003

The value of e-Commerce turnover in 2003 by the Baltic Region enterprises was approximately 517 billion euro, including orders received via Internet and sales via EDI or other networks. The share of total turnover from e-Commerce in the Baltic Region is 12 per cent - 4 percentage points higher than the EU25 average of 8 per cent, cf. figure 4.12. The biggest share of enterprise turnover from e-Commerce is found in Finland (13%), but nearly similar shares can be found in Denmark, Sweden and Germany with figures of 11-12 per cent.

Figure 4.13 **Percentage of enterprises total turnover from e-Commerce. 2003**



Data from Eurostat homepage: http://europa.eu.int/comm/eurostat, Theme Science and technology, Information society statistics.
Iceland: Data for 2002.
Russia: No data available.

e-Commerce constitute less than 4 per cent of turnover in the new EU member countries

In the new EU member countries e-Commerce turnover is not very high, and represents a maximum of 3 per cent of the total turnover in each country. The lowest share is found in Latvia, where only 0.3 per cent of the total turnover of the enterprises is provided via e-Commerce.

5. e-Government (theme 1)

5.0 Introduction

Provision and use of e-Government services

For policy-makers one of the most important direct ways to develop an Information Society is to encourage enterprises and citizens to use the Internet to communicate and deal with public administration. Many governments provide electronic services for their citizens and enterprises. The aim of e-Government is to deliver better, more efficient public services and to improve the relationship between society and governmental bodies as well as to reduce the costs of interaction. The digitization of services progresses at varying rates. Several services have been available online for years - others are only now being provided on the web. Focal attention is directed at electronic services of public administration.

Metodological information

The data for this theme are provided by the two surveys of ICT use by the population and individuals, and ICT usage by enterprises, respectively, cf. chapters 3 and 4. A supplementing source of information is provided by a study commissioned by the Information Society and Media Directorate-General in the context of the *e*Europe programme. The results refer to a survey conducted October 2004, which surveyed a list of 20 basic public services[1].

Four levels of interactions are identified:

- Information starting the procedure to find the public service is available on-line
- One-way interaction, i.e. the paper form starting the procedure to find the service in question can be obtained in non-electronic format (by downloading forms)
- Two-way interaction, i.e. electronic intake with an electronic form, implying an authentication of the (natural or legal) person requesting the service in question
- Full electronic case handling: the matter can be handled in its entirety by the public service's website, including decisions and delivery. No other formal procedures are required via "paperwork".

The highest level of interaction –full electronic transaction on-line –was not included in the surveys of ICT usage by households and individuals, as in 2004 such advanced public services were only available to enterprises or not available at all in the majority of EU countries.

Average figures for the Baltic Region have been calculated taking into account the population or the number of enterprises in each country. No data are available for Russia.

The data are related to the provision of e-Government services and the use of it by citizens and enterprises.

5.1 Government on-line

In most of the Baltic Region countries e-Government services are widespread

- The level of e-Government services in Estonia is high - 63 per cent - or well above the EU25 average of 41 per cent
- 74 per cent of the Swedish government services can be obtained via the Internet

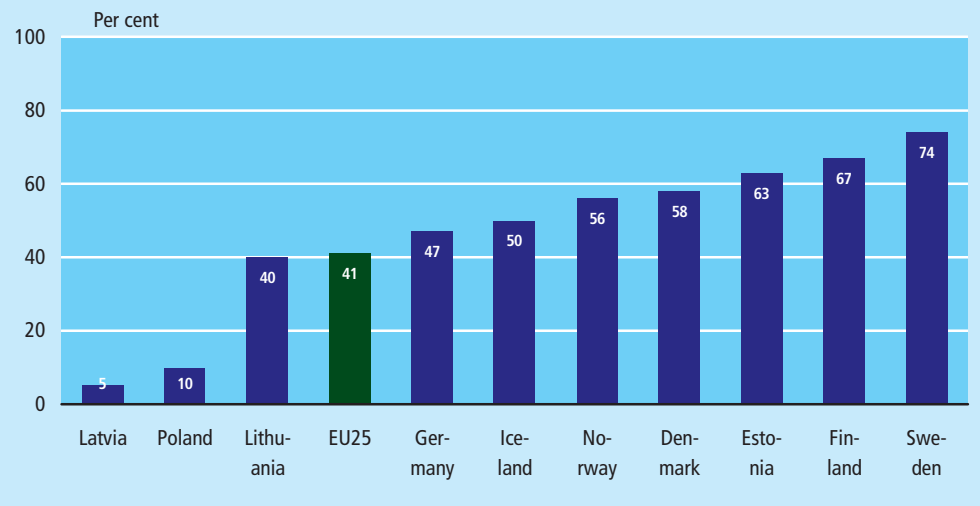
From a list of 20 services, more than 40 per cent are available in most of the countries of the region

In most countries of the Baltic Region a range of government services are available on-line. From a list of 20 basic public services more than half of the services can be obtained via the Internet in all Nordic countries and Estonia, cf. figure 5.1. The best possibilities are found in Sweden, where 74 per cent of the selected governmental services can be obtained via the Internet. Lithuania with 40 per cent is in line with the

[1] For more information see Statistics in Focus, Industry, trade and services, 35/2005 *e-Government 2004: Internet based interaction with European businesses and citizens.*, and Eurostat's homepage: http://europa.eu.int/comm/eurostat, Theme Science and technology, Information society statistics, structural indicators.

EU25 average. Only in Latvia and Poland 10 per cent or less of the government services can be accessed via the Internet.

Figure 5.1 **Share of public administration services available on-line. 2004. Per cent of 20 basic public services.**



Data from Eurostat's homepage: http://europa.eu.int/comm/eurostat, Theme Science and technology, Information society statistics, structural indicators.
Russia: No data available.

5.2. Interaction between citizens and public authorities over the Internet

More than one in four citizens uses public websites to find information concerning public institutions and procedures

– The Icelanders are the most frequent users of e-Government services

More than one in four uses public websites for information

27 per cent of the population in the Baltic Region took advantage of public websites in order to find information concerning public institutions and procedures, cf. figure 5.2. This corresponds to the first level of interaction, cf. the methodological information above.

7 per cent have submitted completed forms via the Internet

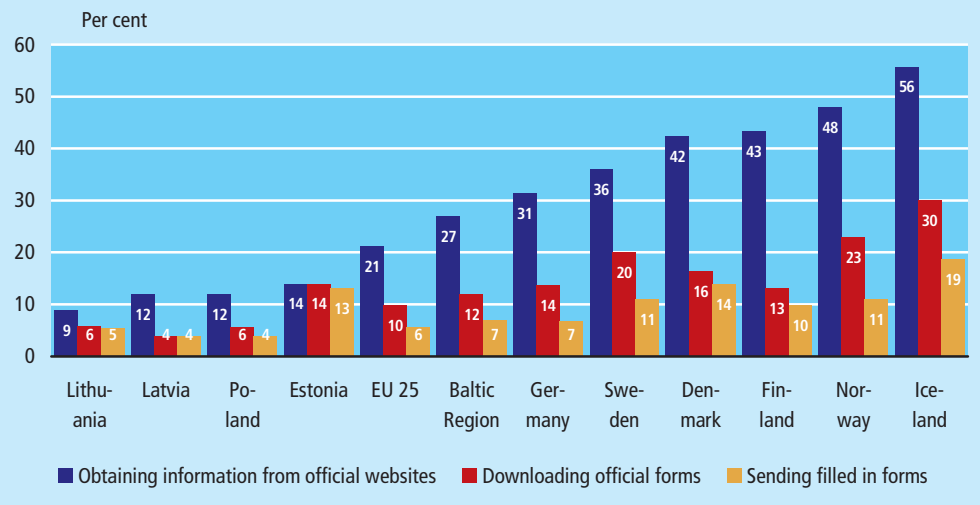
12 per cent downloaded official forms, corresponding to the second level of interaction, and 7 per cent submitted completed forms via the Internet (the third level of interaction). The highest level of interaction between citizens/enterprises and the public sector - full electronic transaction on-line - was not included in the surveys of ICT usage by households and individuals, because in 2004 in the majority of EU countries such advanced public services were only available to enterprises or not available at all.

The Icelanders are the most frequent users of e-Government services

The highest share of e-Government service users was among the Icelanders - more than half of them were looking for information on public administration websites, 30 per cent were engaged in second stage interaction, and almost one in five took advantage of two-way interaction.

In the other Nordic countries the indicators for citizens' e-Government use are higher than the average, a few percentage points above in Germany and significantly below in Lithuania, Latvia and Poland.

Figure 5.2 **Citizen interaction with public authorities via Internet. 2004**
Per cent of population aged 16-74



Russia: No data available.

5.3 On-line interaction between the business sector and public authorities

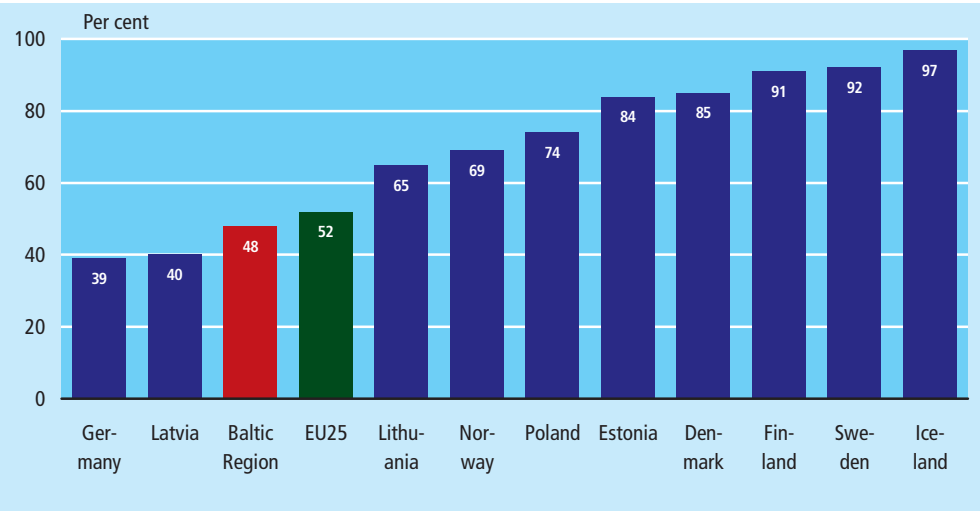
Nearly half of the enterprises with 10 or more employees in the Baltic Region use e-Government services

– Almost all Icelandic enterprises (97%) use public digital services

The share of enterprises using e-Government services is 48 per cent

The average share of enterprises in the Baltic Region using e-Government services is 48 per cent, which is less than the EU25 average (52%), cf. figure 5.3. In the Baltic Region this share is higher in 8 of 11 countries, and only in Germany and Latvia the share is lower than the EU25 average. Very high shares are observed in Iceland, Sweden and Finland: 97 per cent of the enterprises in Iceland and 91-92 per cent in Finland and Sweden engage in interaction with public authorities via the Internet.

Figure 5.3 **Share of enterprises using e-Government services. 2004**



Denmark and Iceland: Data for 2003.
Russia: No data available.

5.3.1 Enterprises use of e-Government services for obtaining information or various forms

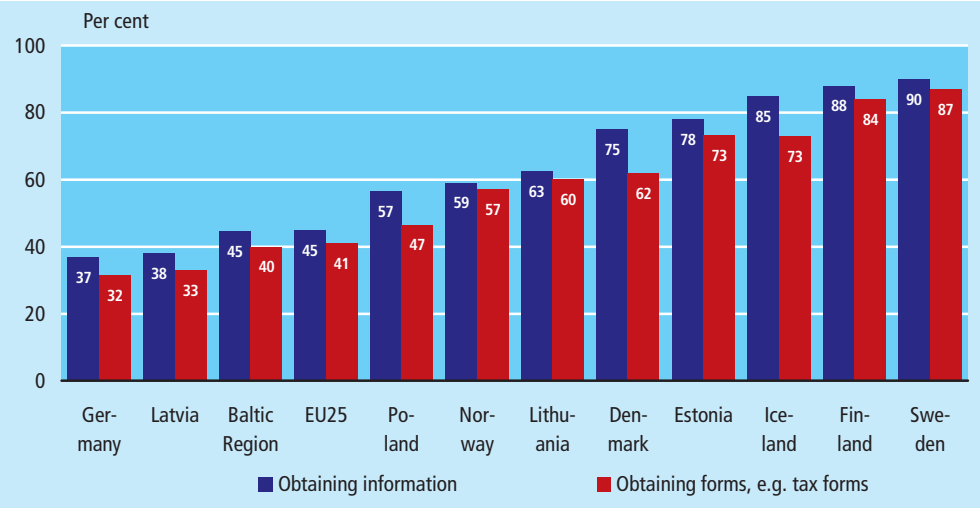
45 per cent of the enterprises in the region use e-Government services to obtain information

– German and Latvian enterprises are the least frequent users of e-Government services for obtaining information or various forms

45 per cent of enterprises obtain information via use of e-Government

Around 270,000 Baltic Region enterprises - or 45 per cent of the enterprises with 10 or more employees - engage in interaction with the public administrations via the Internet to obtain information. Four in ten enterprises in the region - or approximately 230,000 enterprises - use e-Government services to obtain various forms, making the Baltic region average similar to the EU25 average of 41 per cent, cf. figure 5.4. Only two countries have shares below the EU25 average: Germany and Latvia, where 37-38 per cent of the enterprises used public websites to obtain information and 32-33 per cent used the websites to obtain forms.

Figure 5.4 **Share of enterprises using e-Government services for obtaining information or various forms. 2004**



Denmark and Iceland: Data for 2003.
Russia: No data available

5.3.2 Enterprises use of e-Government services for returning forms or use on-line interaction

One in ten enterprises use full electronic case handling for contact with the public administration

– Nearly one third of the enterprises use e-Government to return filled in forms
– The enterprises of Poland are the leading users of e-Government services to return forms online (68%), while EU25 and Baltic Region averages amount to 29 per cent
– The Estonian enterprises are the leaders in the use of full electronic case handling. The share of enterprises using this opportunity is more than five times higher than the average of the Baltic Region (11%).

Approx. 30 per cent use e-Government services to return filled in forms

The use of e-Government services for returning filled in forms to public authorities is widespread among the majority of the Baltic Region countries. 29 per cent of the enterprises in the region use e-Government services for this purpose, which is similar

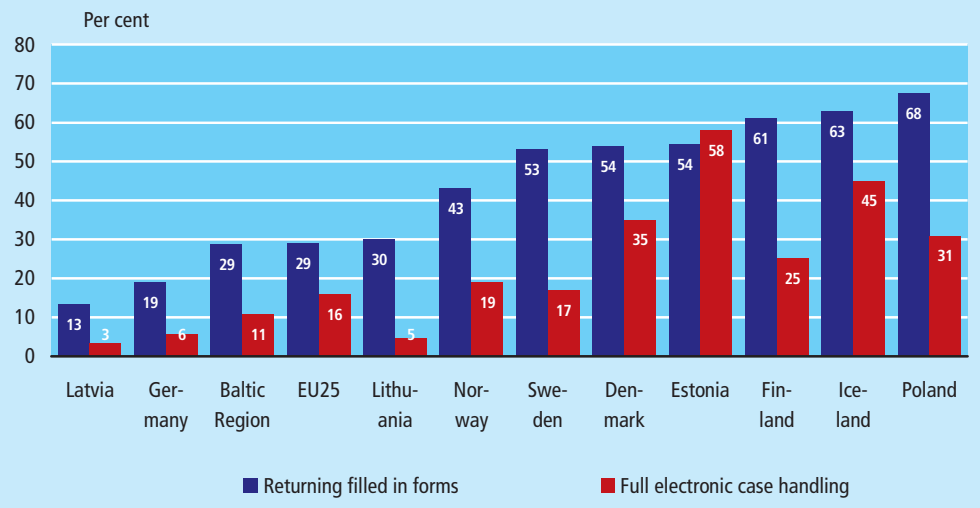
to the EU25 average, cf. figure 5.5. Especially the Polish enterprises make use of this possibility:

68 per cent or more than two thirds have returned filled in forms in this way. The German and Latvian enterprises seem more reluctant to use this opportunity, or have not yet adopted to this way of communication, as only 19 per cent and 13 per cent have used it.

Full electronic case handling is not as frequently used as in EU

Full electronic case handling is still not frequently used by enterprises, neither in the Baltic Region, nor in the EU, illustrated by the average figures of 11 per cent and 16 per cent, respectively. Estonia has the highest share of enterprises using full electronic case handling (58 per cent), followed by Iceland (45 %), Denmark (35 %), Poland (31 %) and Finland (25 %). In Lithuania, Latvia and Germany 6 per cent or less of the enterprises use full electronic case handling.

Figure 5.5 **Share of enterprises using e-Government services to return forms or use on-line interaction. 2004**



Denmark and Iceland: Data for 2003.
Russia: No data available

6. e-Security (theme 2)

6.0 Introduction

Enhanced need for e-Security with the increasing use of ICT

As the information and communication technologies become more and more important to business and society, ensuring the security of both the infrastructure itself and the information that runs through it is critical. Information and network security are increasingly recognised as vital elements for ensuring wide participation in the Information Society.

e-Security problems may hamper full use of the Internet

The Internet and new information and communication technologies are international by nature and security in areas such as privacy of personal data, information security, taxation and consumer protection is imperative. As new business models are being developed to exploit the positive functionalities provided by these new communication and information media, concerns about the security and privacy of information infrastructures and services may inhibit their full take-up. Security problems reduce our trust in the networks and information systems and hinder the full use of the Internet and all its advantages.

Spam, viruses, worms and phishing are major e-Security problems

In recent years the biggest problem related to e-Security is 'spam'. The most frequent description of spam is unsolicited "junk" e-mail sent in large numbers without the user's consent. The biggest part of spam is sent for commercial or advertisement purposes. However, it is also noticed that the amount of damaging spam is increasing – the computer viruses, also called Internet worms or Trojan horses, sent with spam are spreading. These are often computer programs scanning the memory of a virus-infected computer in search of e-mail addresses by which it would be possible to send a virus to another potential victim. "Phishing" mail is also spreading rapidly – it is sent by swindlers in order to receive useful information from a victim. Spammers (i.e. persons sending spam) send this mail for the purpose of finding out passwords or credit card data. To make such mail appear more reliable the letters are usually deceitfully signed by "bank employees".

During the last few years spam has grown from an unpleasant phenomenon to an urgent economic problem. Spam has reached about 60 percent of the total electronic mail flow around the world, thus causing enormous financial losses and jeopardizing the reliability of e-mail as the most popular Internet service.

Metodological information

The data for this theme are provided by the two surveys of ICT use by the population and individuals, and ICT usage by enterprises, respectively, cf. chapters 3 and 4.

Data on the use of ICT by enterprises are based on enterprises with 10 or more employees. Data on the use of ICT by the population are based on the population aged 16-74 years.

Average figures for the Baltic Region have been calculated taking into account the population and number of enterprises in each of the countries from which data are available.

Data cover the Internet users' experiences with e-Security problems and the use of ICT security measures.

6.1 Internet users' experience and usage regarding ICT-security

31 per cent of the Baltic Region citizens encounter spam problems

- 12 per cent of the citizens in the Baltic Region encounter security problems related to computer virus
- Computer viruses caused less damage in the Baltic Region than in the EU25

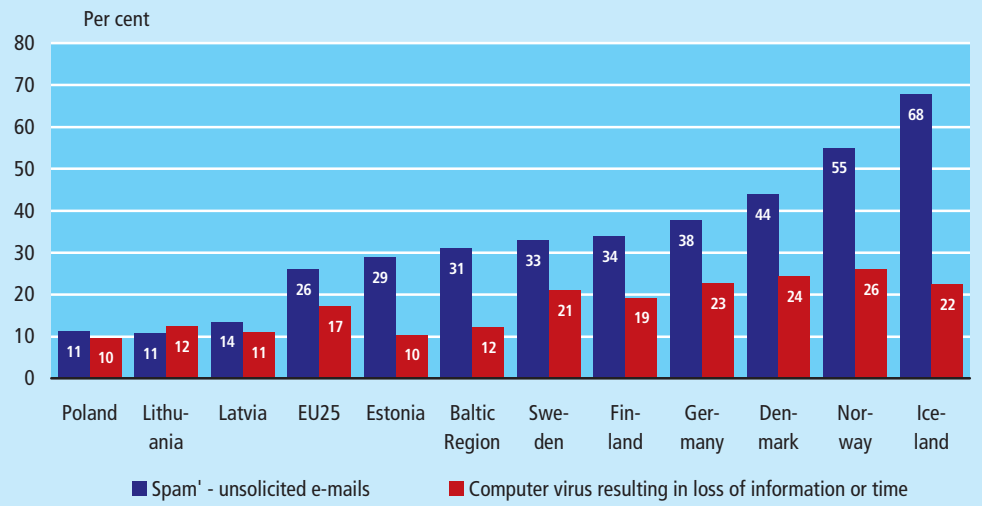
– Spam is a real plague in Iceland and Norway.

Spam –the most frequently reported e-Security threat

Spam is the most frequently reported security treat, or nuisance which sometimes, however, could be dangerous[1]. 31 per cent of the population in the Baltic Region have experienced such problems, which is 5 percentage points more than the EU25 average (26%), cf. figure 6.1.

The more people use the Internet, the more frequently their privacy is violated by spam. In the countries which are leaders in the use of the network – Iceland and Norway – 68 per cent and 55 per cent of the citizens report it, while in Poland, Lithuania and Latvia 10-14 per cent of the population has suffered from spam and computer virus.

Figure 6.1 **Share of the population having encountered problems during Internet use. 2004. Per cent of population aged 16-74**



Russia: No data available.

12 per cent have encountered loss of data or time

In the Baltic Region more than one in ten individuals (12%) have encountered a serious security problem caused by computer virus which resulted in loss of data or time. This is 5 percentage points lower than the EU25 average (17%), even though the use of the Internet is significantly more widespread in the Baltic Region, where 51 per cent of the households have access to the Internet, than in the EU25, where the corresponding figure is 43%.

Impact of e-crimes and lack of trust in e-Commerce

– One in ten individuals in the Baltic Region do not use e-Commerce due to perceived risks

– Less than 1 per cent have been victims of fraudulent payment when purchasing over the Internet

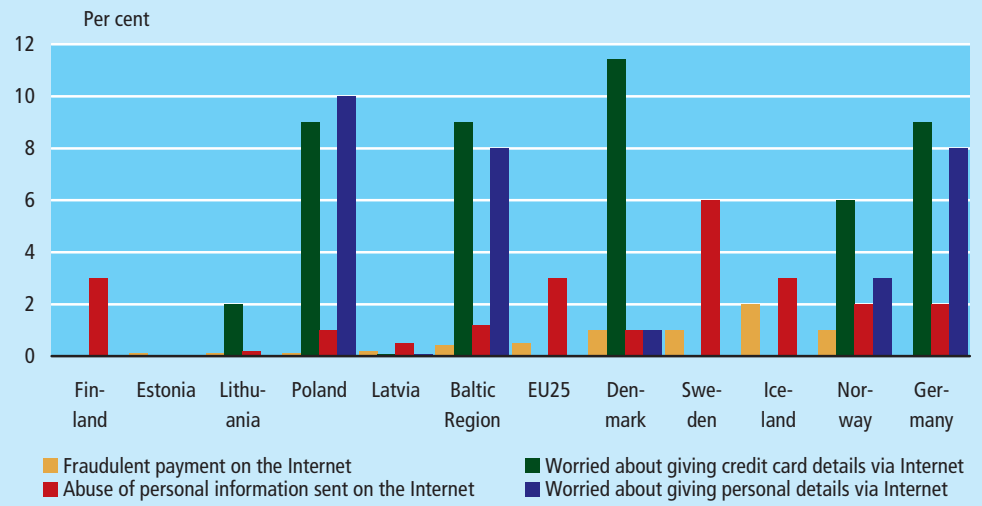
Less than 1 per cent have suffered fraudulent payment related to Internet purchase

Although only 0.4 per cent of population of the Baltic Region suffered fraudulent payment in relation to purchasing over the Internet, 9 per cent do not use the web for e-Commerce activities because they worry about giving credit card details during on-line transactions, cf. figure 6.2. This share is highest in Germany (9%).

[1] Although usually spam is not as dangerous as computer viruses or crackers activities, unsolicited e-mail can be used to widespread malicious codes, like spy-ware programs (data miners, links to web pages, which includes tracking cookies etc.) or even Trojan horses, which are sort of computer viruses allowing crackers to get access to our computer.

Similarly the share of the population in the Baltic Region being afraid of giving personal data over the Internet - which is the reason they do not purchase anything over the Internet - is 8 per cent, whereas only 1 per cent have actually become victims of abuse of their private information, cf. figure 6.2.

Figure 6.2 **Share of persons having worries about giving personal details via the Internet, compared to share of persons who have been victims of frauds when using the Internet. 2004. Per cent of population aged 16-74**



Russia: No data available.

e-Security - precautions

- Virus checking programs are used by 20 per cent of the population in the Baltic Region
- The population of the Nordic countries are leaders in applying on-line authentication

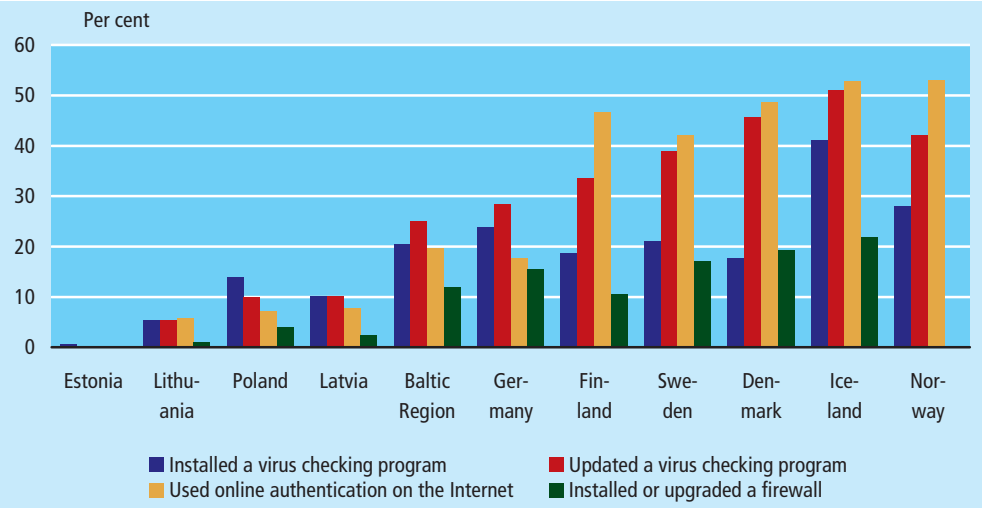
20 per cent have installed and 25 per cent have updated a virus checking program

The most frequently used security precaution appears to be virus checking programs - in 2004 on average 20 per cent of the population in the Baltic Region installed such programs, either for the first time or once again, cf. figure 6.3. The share of the population who have been keeping such software updated was even five percentage points higher.

Approx. one in five use on-line authentication methods

On-line authentication methods (passwords, PINs or digital signature) are almost as widespread as installation of virus checking programs - nearly 20 per cent of the population use these methods. Firewalls are less widespread e-Security precautions, though 10 per cent of the population have installed or updated such software or hardware solutions to prevent malicious Internet users from access to their computers.

Figure 6.3 **Share of the population using security precautions related to Internet use. 2004**



6.2 Enterprises experience and usage regarding ICT-security

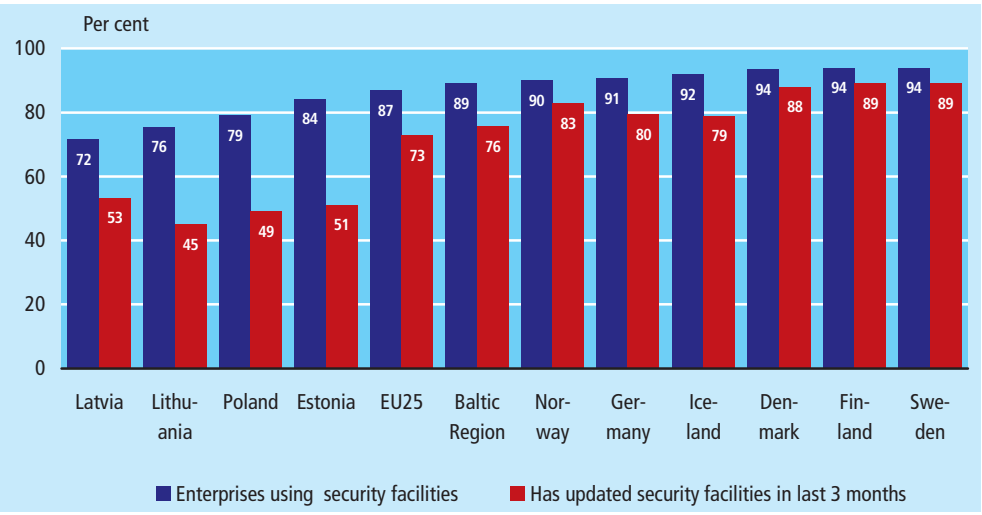
89 per cent of the Baltic Region enterprises use security facilities

- Approx. 530,000 enterprises in the Baltic Region use e-Security facilities
- Only 6 per cent of the enterprises in Denmark, Finland and Sweden are not concerned about e-Security
- The biggest problems with e-Security in 2003 were registered in Denmark and Finland

9 in 10 enterprises use e-Security facilities

e-Security is an important consideration for enterprises and is often considered problematic in relation to Internet use. 70 per cent or more of the enterprises in each of the countries of the Baltic Region use e-Security facilities and the average for the region is 89 per cent, cf. figure 6.4. In this area the Baltic Region average is 2 percentage points higher than the EU25 average.

Figure 6.4 **Share of enterprises using security facilities and having updated security facilities. 2004**



Iceland: Data for 2003.
Russia: No data available.

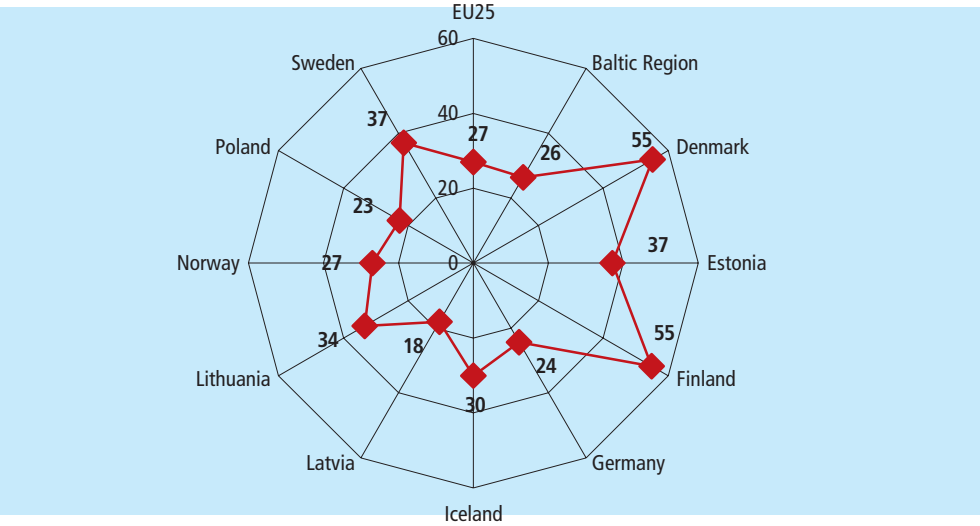
76 per cent have updated security facilities min. once in 3 months

In the majority of the Baltic Region countries enterprises update their security facilities regularly. On average 76 per cent of the enterprises (85% of the enterprises which are using security facilities) have updated their security facilities at least once within 3 months. In Estonia, Latvia and Poland however, only about 50 per cent of enterprises updated their security facilities.

One in four enterprises have reported e-Security problems

During 2004, more than one in four enterprises in the Baltic Region (26%) and in the EU25 (27%) encountered security problems, cf. figure 6.5. The biggest problems concerning e-Security were registered in Denmark and Finland, where 55 per cent of the enterprises had encountered security problems during a three months period, which is twice the EU25 average. Latvia - where the share of enterprises using e-Security facilities is relatively low (72%) - is at the same time the country with the smallest percentage of enterprises reporting security problems (18%).

Figure 6.5 **Share of enterprises having encountered security problems. 2004**

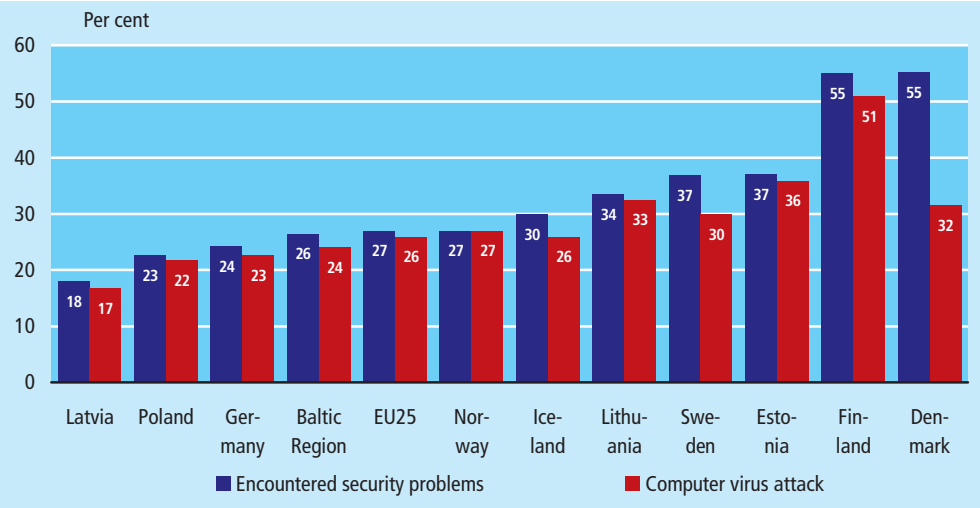


Iceland: Data for 2003.
Russia: No data available.

24 per cent of the enterprises have had problems with virus attacks

The threat of computer virus attacks can by a major problem for Internet use. On average 24 per cent of the enterprises in the Baltic Region reported problems with virus attacks, compared to an average of 26 per cent in the EU25, cf. figure 6.6. In Finland computer viruses are most widespread, as 51 per cent of the enterprises have had virus attacks. In Denmark, Estonia, Lithuania and Sweden the shares are 30-36 per cent, and in Poland, Germany, Iceland and Norway 22-27 per cent. In Latvia only 18 per cent of the enterprises had problems with computer virus.

Figure 6.6 **Share of enterprises having encountered computers virus attacks. 2004**



Iceland: Data for 2003.
Russia: No data available.

Less than 5 per cent have experienced unauthorized access to data or computer systems

Based on the results of the national surveys of ICT use in enterprises, unauthorised access to the data or computer system of the enterprise and blackmail or threats to the enterprise data or software does not seem to be a big problem in the countries of the Baltic Region[2]. Less than 5 per cent of the enterprises have encountered these types of e-Security problems, except for Iceland, where 8 per cent of the enterprises encountered unauthorised access to enterprise computer systems or data (2003)[3].

e-Security precautions in the Baltic Region enterprises

1/2 million enterprises in the Baltic Region use anti-virus software

– 84 per cent of the Baltic Region enterprises are using virus checking software

Anti-virus software and firewalls are widespread e-Security facilities in the Baltic Region

The most widespread e-Security facilities in Baltic Region are - like in other countries - anti-virus software and firewalls, cf. figure 6.7. 84 per cent of the enterprises in the Baltic Region use virus checking software, and the share of enterprises using these facilities are especially high in the Nordic countries with shares ranging from 87 to 93 per cent. 70-80 per cent of the enterprises in the Nordic countries used a firewall, and more than one third of the enterprises used secure servers. In the new EU25 countries of the region however, only 9-23 per cent of the enterprises use secure servers.

e-Security facilities are not frequently used in Latvia

The lowest share of enterprises using e-Security precautions is found in Latvia – only 67 per cent used anti-virus software, 30 per cent used firewalls and 14 per cent used secure servers. But still it is a small per cent of the Latvian enterprises who have encountered security problems - only 18 per cent.

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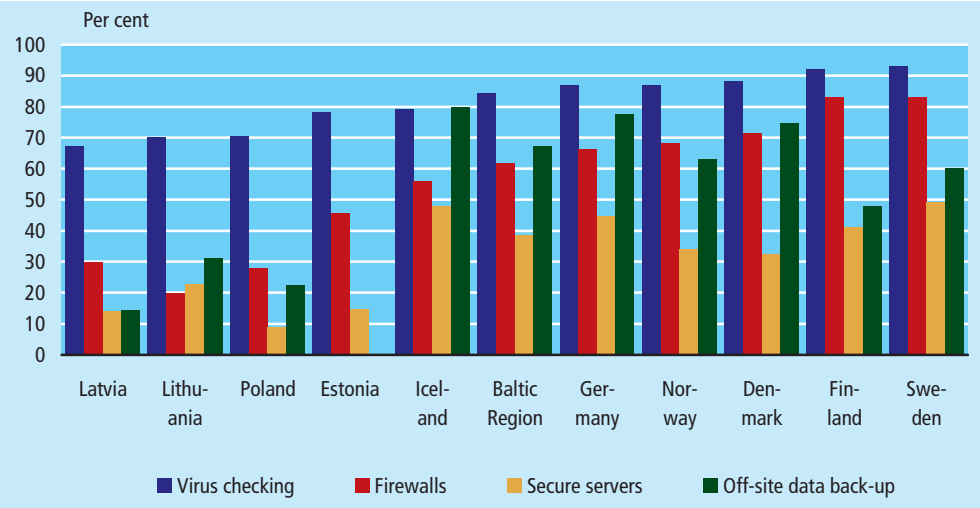
[2] As e-Security problems may be critical for enterprises to encounter, there may be a tendency to underestimate the actual occurrence of such problems.

[3] See Annex 2, tables relating to chapter 4 ICT use in enterprises for detailed figures.

Figure 6.7 **Share of enterprises using internal e-Security facilities. 2004**



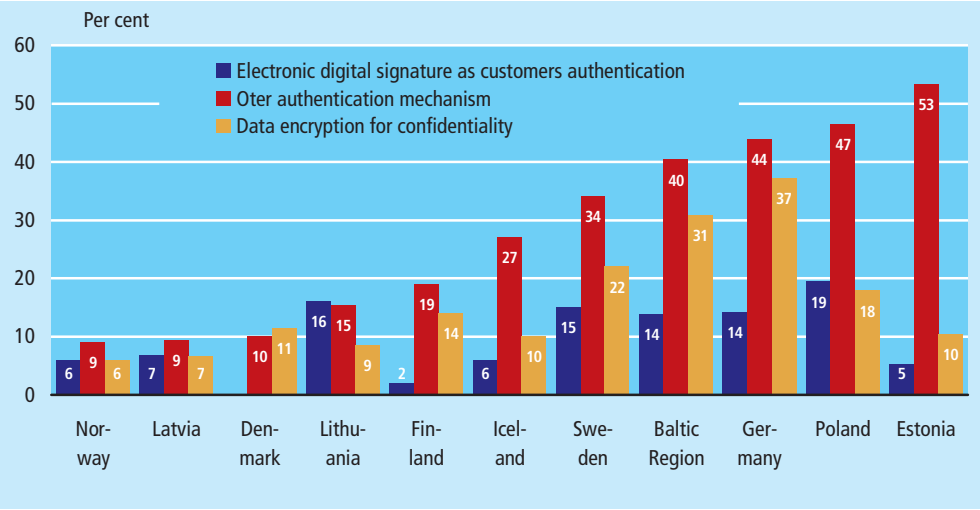
Iceland: Data for 2003.
Russia: No data available.

14 per cent of the enterprises in the region use electronic digital signature

Important components of e-Security are a) accessibility of the information systems, b) confidence in information being correct, and c) that one knows that the correct and authorized person is sending/receiving the information. For these purposes different authentication mechanisms are used. At the moment, electronic signature, like security facilities, is not widespread among the enterprises of the Baltic Region.

The highest share of enterprises using electronic signature is found in Poland, where one in five enterprises use this authentication method. In Lithuania, Sweden and Germany the corresponding figures are 14-16 per cent. In the other countries of the region less than 10 per cent of the enterprises use electronic signature as authentication method, whereas other authentication methods (e.g. PIN codes) are more widespread.

Figure 6.8 **Type of e-Security facilities in enterprises. 2004**



Iceland: Data for 2003.
Russia: No data available.

7. e-Skills and e-Learning (theme 3)

7.0 Introduction

e-Skills are part of the human capital

Human capital is a central pillar of growth and productivity thus investing in people and skills is a vital topic not only for policy makers, but also for enterprises. That is one of the reasons why the share of the labour force with ICT skills has been steadily growing.

Adapting education and training systems for the knowledge society is a crucial issue as a means to reduce the digital divide[1]. The diffusion and use of ICT modify employment, work and skill patterns. ICT usage can foster lifelong learning and enable mobility of workforce.

Methodological information

The data for this theme are provided by the surveys of ICT use by the population and by individuals, and by the surveys of ICT use by enterprises, respectively. A few questions included in the surveys address the issue of e-Skills and e-Learning specifically.

Three dimensions are included in this theme:

- The e-Skills of the population, e.g. skills that are directly related to computer and Internet use.
- e-Learning, which focus on the use of computer/Internet for learning, though not necessarily restricted to obtaining computer-related qualifications, and
- Enterprises' use of e-Learning, which may cover courses specifically developed for the enterprise or may be general courses, e.g. language courses.

Statistical research on e-Skills of the population has been based on the assumption that to carry out specific activities related to computer or Internet usage, a person has obtained the skills related to perform the activity.

For Estonia, Russia and Sweden data are partly available.

Average figures for the Baltic Region have been calculated taking into account the population and number of enterprises in each country for which data are available.

The data focus on the populations' computer skills, participation in organised computer courses and the use of the Internet for training and educational purposes. Also it includes the enterprises' use of training and education via the Internet.

7.1 The e-Skills of the population in the Baltic Region

Approx. half of the population have basic computer skills

- 50 per cent know how to use copy and paste tools
- 4 in 10 know how to send e-mails with attachments. In Iceland the share is 68 per cent

50 per cent of the population of the region are able to use copy and paste tools

As far as a basic skills related to computer usage are concerned an average of 50 per cent of the population in the Baltic Region can use copy, cut and paste tools, cf. figure 7.1. In Iceland and Denmark approx. 65 per cent of the population knows how to do this, while the corresponding figures for Latvia, Poland and Lithuania is 30-33 per cent.

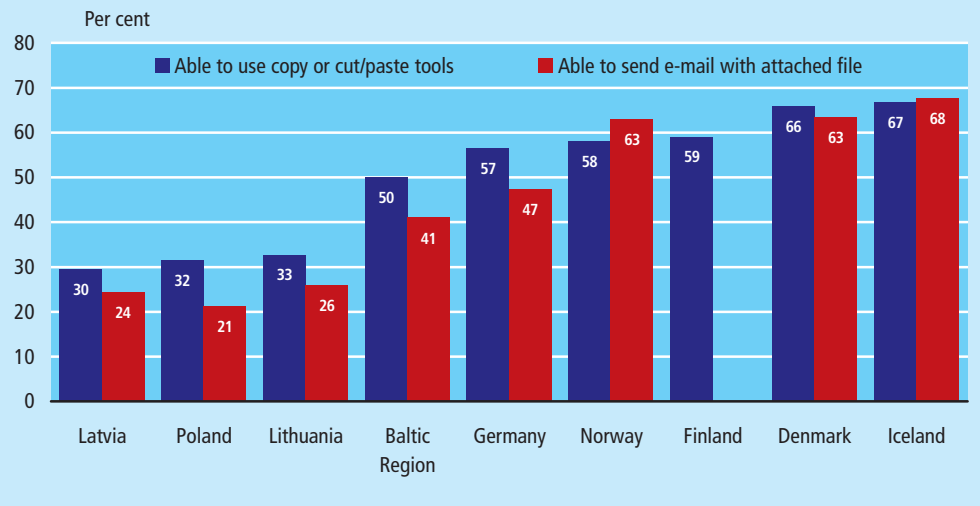
[1] The concept of Digital divide refers to the gap between those parts of the population who has adapted to the digital technologies/the Information Society in broader terms, and those who have not. The latter part is at risk of falling behind as still more information and knowledge etc. is communicated and exchanges via digital media.

4 in 10 can send an e-mail with attachments

41 per cent of the population in the region are able to send an e-mail with attachments. In Iceland more than two thirds of the population are able to carry out this activity, and in Iceland and Denmark only a slightly lower number of people or 63-68 per cent, are able to do this. Iceland and Norway are the only two countries in which more people are able to send e-mails with attachments than to use copy and past tools, which may indicate the importance of computers and the Internet as tools of communication.

Figure 7.1

Share of the population with basic skills related to computer use. 2004. Per cent of population aged 16-74



The Baltic Region average is calculated on basis of countries from which data are available.

- 33 per cent of the population in the Baltic Region are able to use arithmetic formulas in spreadsheets
- Half of the Danish and Icelandic population is capable of using a spreadsheet

On third can use basic arithmetic formulas in spreadsheets

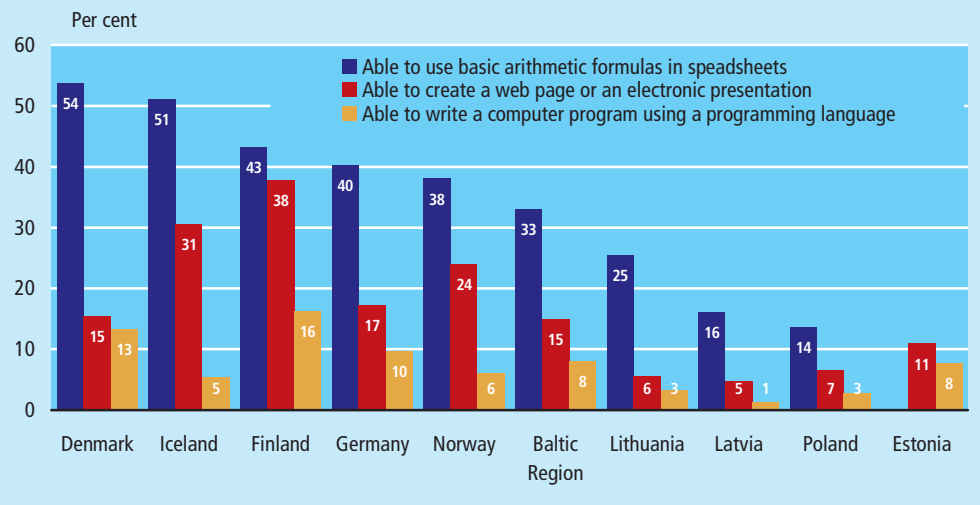
One third of the population in the Baltic Region aged 16-74 knows how to use basic arithmetic formulas in a spreadsheet, cf. figure 7.2. On national level there are quite significant differences when it comes to these more advanced e-Skills: in Denmark and Iceland more than 50 per cent of the population can use such formulas, whereas the corresponding shares in Latvia, Lithuania and Poland range from 14 per cent to 25 per cent.

15 per cent are able to create web pages or electronic presentations

More than one in seven persons in the Baltic Region knows how to create a web page or an electronic presentation. Especially in Finland this share is much higher (nearly 40%), but the creation of web pages and electronic presentations is also quite well known to the Icelandic and Norwegian populations where 24 per cent or more possess these skills.

8 per cent are capable of writing a computer program by means of a programming language. This capability is most widespread in Finland (16%) and Denmark (13%).

Figure 7.2 **Share of the population with more advanced skills related to computer use. 2004. Per cent of population aged 16- 74**



The Baltic Region average is calculated on basis of countries from which data are available.

7.2 The use of e-Learning by the population of the Baltic Region

More than one third of the region's population have participated in organised computer courses

- One in ten has used the Internet for formalised educational activities
- More than half of the population of Denmark have taken part in a computer course lasting at least 3 hours

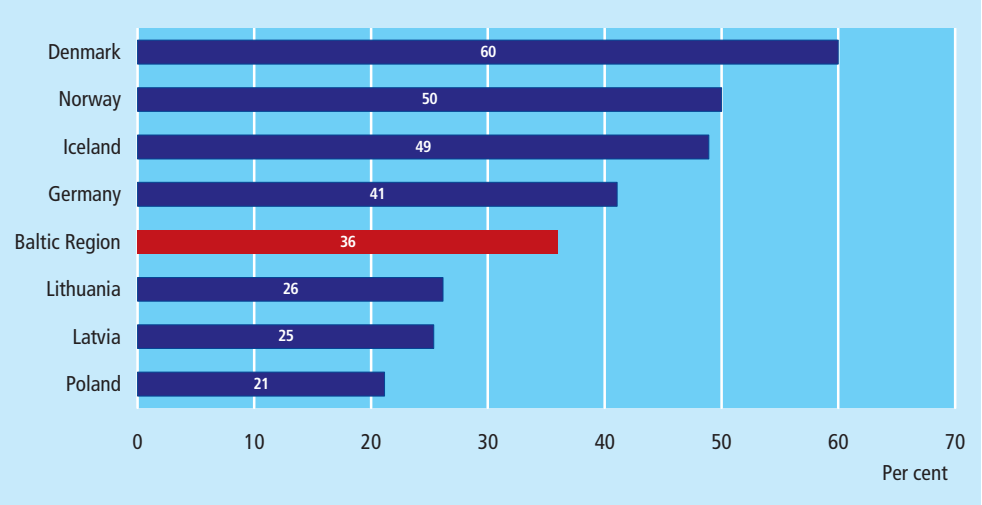
Figures on e-Learning are related to availability of computer and Internet access

The frequency of using e-Learning is to some extent related to the actual supply of such activities on one hand, and on the other hand on the availability of computer and Internet access for those who are interested in using these possibilities. The figures on e-Learning can therefore not be analysed individually, but should be compared to the availability of computers and Internet access, cf. chapter 3.

One third of the population has participated in organised computer courses

36 per cent of the population in the Baltic Region have participated in organised computer courses, with a maximum of 60 per cent in Denmark, cf. figure 7.3. Computer courses are less used in the rest of the Baltic Region, but still in Iceland and Germany the share of people aged 16-74 who are eager to capture ICT knowledge is above the average. Also more than 20 per cent of the populations in Poland, Latvia and Lithuania have developed their skills in such a way.

Figure 7.3 **Share of the population who has participated in organised computer courses. 2004. Per cent of population aged 16-74**



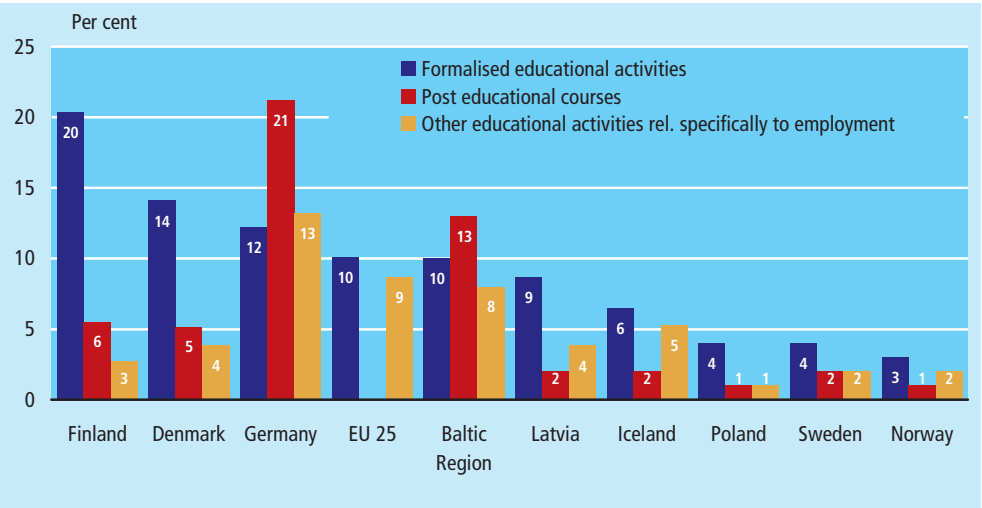
The Baltic Region average is calculated on basis of countries from which data are available.

10 per cent of the population in the region use the Internet for formalised education

On average 10 per cent of the population in the Baltic Region use the Internet in order to participate in formalised educational activities, not necessarily related to computer or Internet usage, cf. figure 7.4. 13 per cent took part in post educational courses via the Internet and 8 per cent used the web for educational activities related specifically to employment opportunities. One out of five Germans participated in post educational courses via the Internet and 13 per cent used the Internet to take part in educational activities related specifically to employment opportunities, which is the highest share in the Baltic Region.

Only 1 per cent of population in Poland uses the Internet to take part in educational activities related specifically to employment opportunities. Only in Iceland and Germany more than 5 per cent of the population use the Internet for educational activities related specifically to employment opportunities.

Figur 7.4 **Share of the population having used the Internet for training and education. 2004. Per cent of population aged**



The Baltic Region average is calculated on basis of countries from which data are available.

7.3 Enterprises' use of training and education via the Internet

Lithuanian, Polish and Latvian enterprises are the leaders in using training and education via the Internet

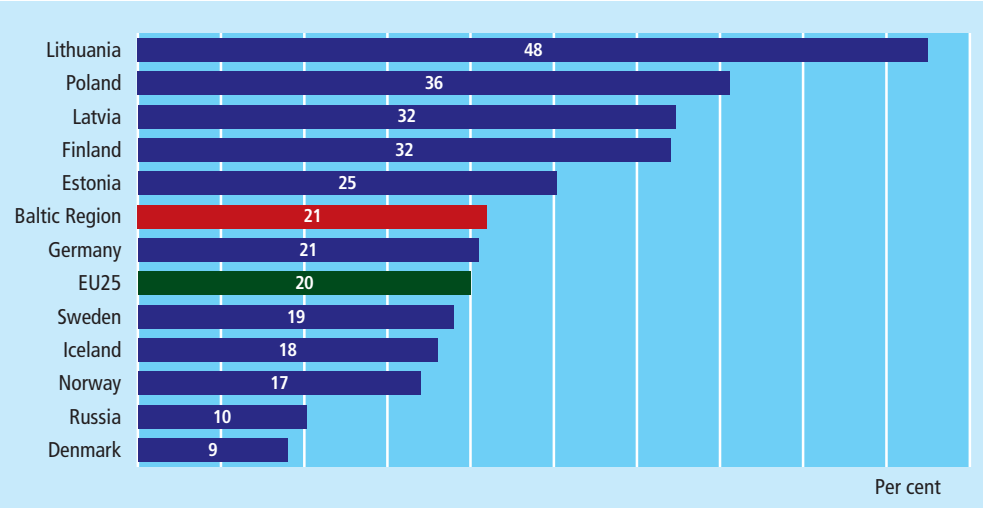
- 48 per cent of the Lithuanian enterprises used the Internet for training and education, which is far more than the EU25 average of 20 per cent
- Approx. one third of the enterprises in Poland, Latvia and Finland made use of the Internet for training and education

2 in 10 enterprises use the Internet for training and education

The average share of enterprises in the Baltic Region using the Internet for training and education is 21 per cent, which is nearly similar to the EU25 average of 20 per cent. The lowest rate of enterprises using the Internet for this purpose is found in Denmark and Russia with shares of 9 per cent and 10 per cent, respectively, or approx. half the EU25 average.

For Norway, Iceland, Sweden and Germany the share of enterprises using the Internet for training and educational purposes is close to the Baltic Region and EU25 averages.

Figure 7.5 **Per cent of enterprises using the Internet for training and education. 2004**



The Baltic Region average ion basis of countries for which data are available.
Iceland and Russia: Data for 2003.

8. The ICT sector -
Structure, production, foreign trade and R&D

8.0 Introduction

The ICT sector is the main provider of ICT solutions, whether it concerns the production of ICT goods, development and supply by means of ICT infrastructure or software and hardware solutions etc. Thereby the ICT sector is an important backbone in the development of the information society of the Baltic Region[1].

Methodological information

Data for the description of the structure of the ICT sector are mainly collected within the framework of the Structural Business Statistics (SBS) Regulation. The NACE revision 2003 has resulted in a new definition of ICT wholesale, which at least in some countries affects the coverage of wholesale activities. ICT goods production is typically based on the Prodcom[2], whereas foreign trade data are mostly provided by customs declarations being further processed to the Intrastat reports from the countries to Eurostat[3].

Research & Development (R&D) data and data relating to Innovation are in most cases provided via R&D surveys and Innovation surveys for the business sector. For R&D surveys the basic definitions and guidelines are laid down in the Frascati Manual[4]. For Innovation surveys definitions and guidelines are found in the Oslo Manual[5].

Data relate to a range of variables describing the structure of the ICT sector (employment, turnover, number of enterprises and value added), the production and external trade with different types of ICT goods and the Research and development expenditure and innovation activities of the ICT sector.

8.1 The structure of the ICT sector

Reduced employment but growth in turnover and value added indicates increased productivity in the ICT sector of the Baltic Region

- The ICT sector consists of 194,000 ICT enterprises employing 1.7 million persons
- The German ICT sector is important for the region, employing approx. 60 per cent of those working in the regions' ICT sector, and accounting for approx. 58 per cent of value added
- The Latvian ICT sector differs substantially from the other countries of the region by 50 per cent of the enterprises being large – in all other countries of the region small enterprises dominate the supply side of the market.
- The Lithuanian ICT sector is employing still more persons – the growth rate in employment from 2000 to 2003 is 12 per cent

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[1] No data concerning the ICT sector is available for Russia. Therefore the term 'The Baltic Region' means 'The Baltic Region exclusive of Russia' in this chapter.

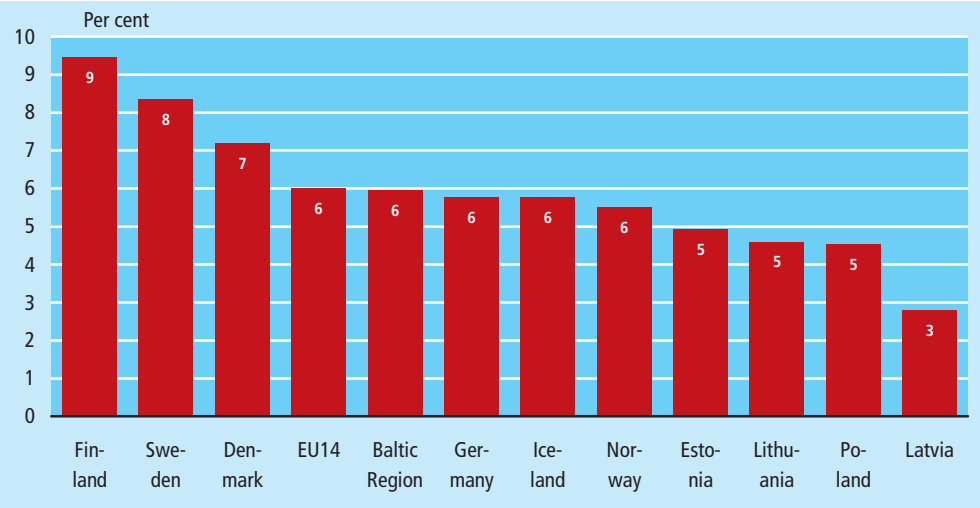
[2] PRODucts of the European COMmunity (PRODCOM): a harmonised system across the European Community for the collection and publication of product statistics.

[3] Eurostat: the statistical office of the EU.

[4] Frascati Manual 2002: *Proposed standard practice for surveys of research and experimental development*. OECD, 2002 (www.oecd.org)

[5] Oslo Manual: *Guidelines for Collecting and Interpreting Innovation Data, 3rd Edition*. OECD/Eurostat, 2005. (www.oecd.org)

Figure 8.1 **Employment. ICT sector share in per cent of the private sector. 2003**

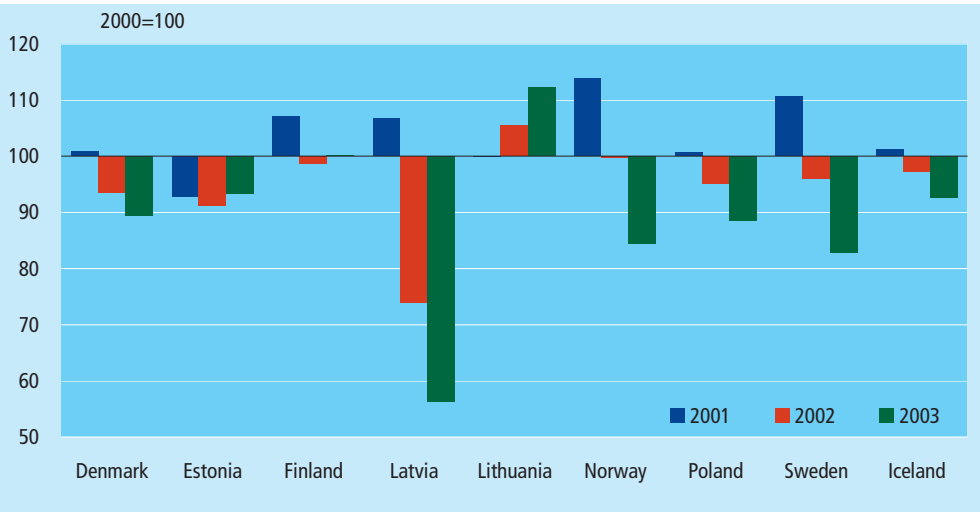


Estonia: Activities 65-67 of NACE are excluded.
Germany: Data for 2000.
Iceland: Data for 2001.
Latvia: Data for 2002.
Poland and Finland: Data for 2004.
Finland: Provisional data.

1.7 million persons employed in the ICT sector

The ICT sector of the Baltic Region employs nearly 1.7 million persons (2004) or about 6 per cent of the total number of persons employed[6] in the private sector[7] of the region, cf. figure 8.1. This means that the relative employment share of the ICT sector is at the same level as EU14[8].

Figure 8.2 **Employment in the ICT sector. 2000-2003[9]**



[6] Lithuania: number of employees.

[7] For a definition of the private sector see Annex 1.

[8] EU14: here Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Portugal, Netherlands, Sweden, Spain and United Kingdom (*Information Technology Outlook*, OECD 2004.

[9] The revision of NACE has lead to a new and more precise definition of ICT wholesale, which may affect the figures, as activities included in the former definition are now left out. Depending on the use of national activity definitions and on the composition or structure of the ICT wholesale activities in each country, the new delimitation will typically result in a decrease from 2002 to 2003 in the data value observed, not only for employment, but also for turnover, number of enterprises, value added etc.

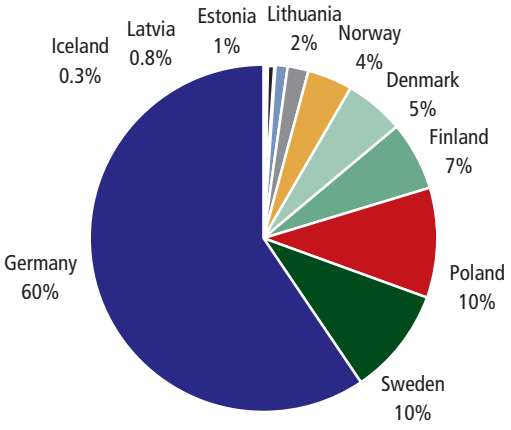
Decreasing ICT employment, mainly in the Nordic countries

From 2000 to 2003 the employment in the ICT sector decreased by 11 per cent in those countries for which data are available[10], which is mainly due to a decrease of 11-17 per cent in the employment in the ICT sectors of Sweden, Poland, Norway and Denmark. In Lithuania the ICT sector employs still more persons, illustrated by the growth rate of 12 per cent from 2000 to 2003, cf. figure 8.2.

Germany plays a significant role for the region's ICT employment

Being the largest EU country, Germany plays a significant role for the region's ICT sector employment, accounting for approximately 60 per cent[11] of the total ICT sector employment in the Baltic Region, cf. figure 8.3. Sweden and Poland account for 10 per cent each, followed by Finland with 7 per cent.

Figure 8.3 **Share of total ICT sector employment by countries. 2003**



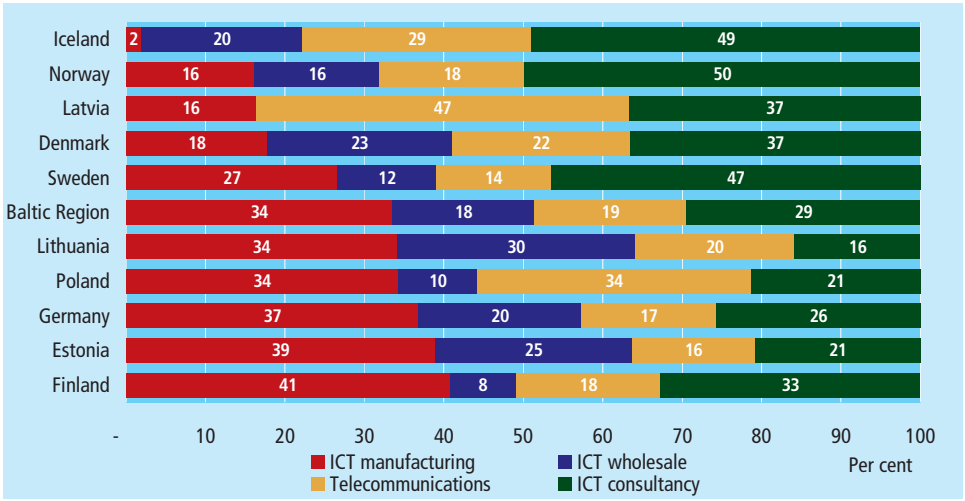
The figures does not sum to 100 per cent as the figures are generally rounded off, except for those countries where figures are smaller than 1 per cent and therefore shown including the decimals.

The strength of the ICT sector in each of the countries is indicated by the employment composition of the ICT sub-sectors, cf. figure 8.4. The figure shows that ICT manufacturing plays a major role in Finland, Estonia, Germany, Poland and Lithuania, where it represents from 34 per cent to 41 per cent of the total ICT sector employment. For Iceland, Norway and Sweden ICT consultancy services are more important measured by their share of ICT sector employment, which represents approximately half of the employment of the ICT sector. In Latvia and Poland the employment share related to Telecommunication is highest, illustrated by shares of 47 and 34 per cent, respectively.

[10] Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, Poland and Sweden.

[11] Estimate based on figures from 2000.

Figure 8.4 **ICT sub-sector employment. Per cent of the total employment of the ICT sector. 2003**

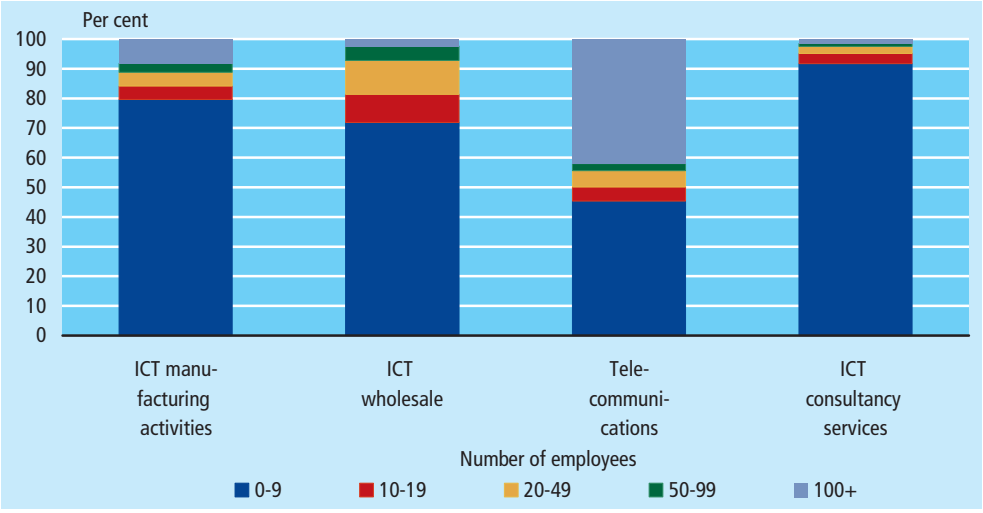


Latvia: No data available for ICT wholesale

194,000 ICT enterprises in the Baltic Region

At the ICT supply side approx. 194,000 enterprises are operating in the Baltic Region, of which 70 per cent are enterprises within ICT consultancy services. Most of these enterprises are relatively small – in fact, about 85 per cent have 10 or less employees. This general picture does not apply to the individual sub-sectors, however, as can be seen from figure 8.5. Within ICT consultancy services an even larger share of the enterprises are small, in total approx. 90 per cent have 10 or less employees. Telecommunications show a quite different picture, with a substantial part – 42 per cent – being large enterprises, i.e. enterprises with 100 or more employees.

Figure 8.5 **Number of enterprises by size class. 2003**



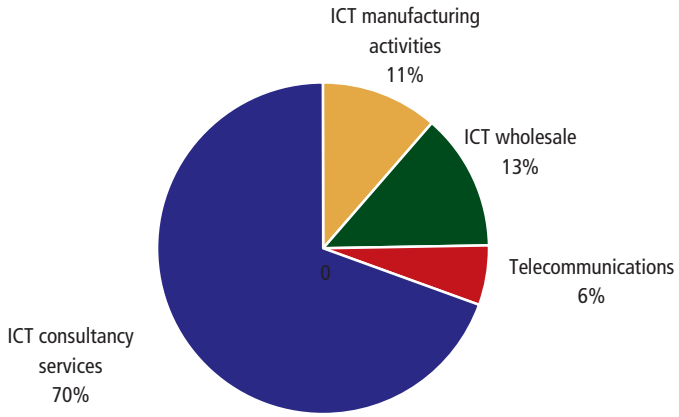
Finland: Provisional data for 2004.
Poland: Data for 2004.

The Latvian ICT sector is dominated by large enterprises

At the national level the Latvian ICT sector is characterised by a remarkably different size structure than the other countries of the region. Only 8 per cent of the ICT enterprises in Latvia have less than 10 employees, compared to an average of 86 per cent. At the same time 50 per cent of the enterprises have more than 100 employees, compared to an overall average of 5 per cent.

The largest part of the enterprises – 70 per cent - is operating within ICT consultancy services, cf. figure 8.6.

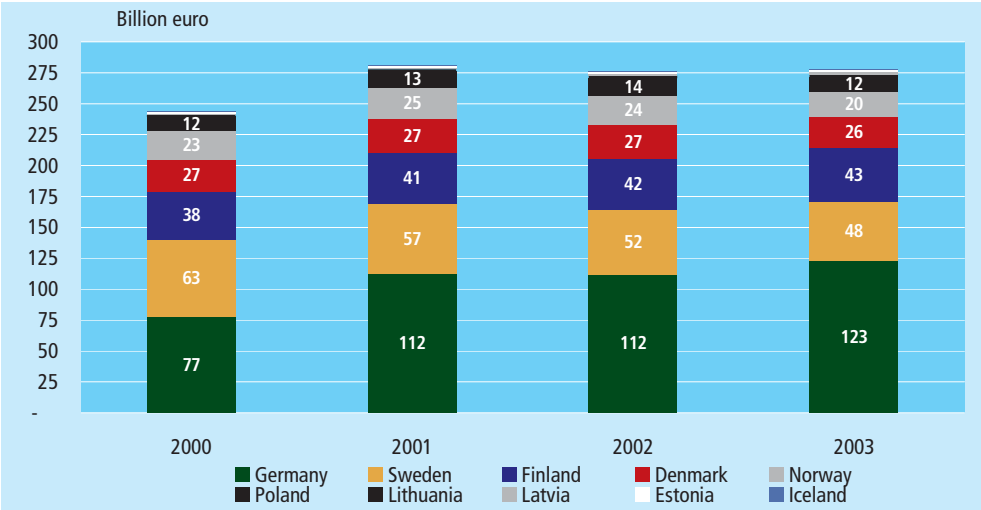
Figure 8.6 **Enterprises by ICT sub-sector. 2003**



Stable ICT sector turnover in the region in general

The turnover of the Baltic Region's ICT enterprises came to approximately 278 billion euro in 2003, cf. figure 8.7. The turnover increased by 15 per cent from 2000 to 2001, and has since then been stable for the region in general.

Figure 8.7 **ICT sector turnover. 2000-2003**[12]



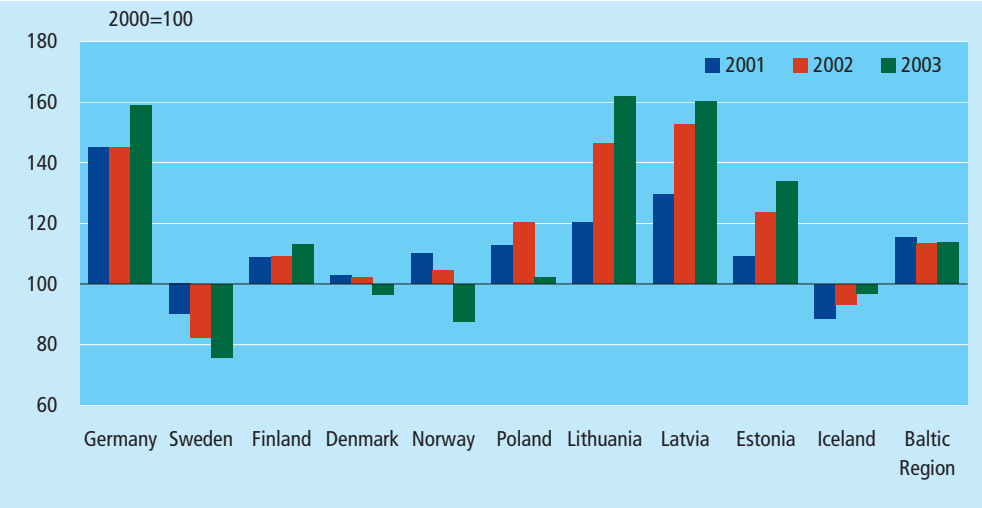
Germany: Excluding ICT manufacturing and ICT wholesale
Poland: Excluding Telecommunications

Large variations in turnover development in the countries

As it appears from figure 8.8, the relatively stable turnover of the region is not reflected in the figures for the individual countries of the region: in fact, Lithuania, Latvia and Germany have seen a much more distinct increase in the ICT sector turnover of approximately 60 per cent from 2000 to 2003. At the other end, the turnover of the Norwegian and Swedish ICT sectors decreased by 12 per cent and 24 per cent, respectively, from 2000 to 2003.

[12] See footnote no. 9.

Figure 8.8 **ICT sector turnover. 2000-2003[13]**

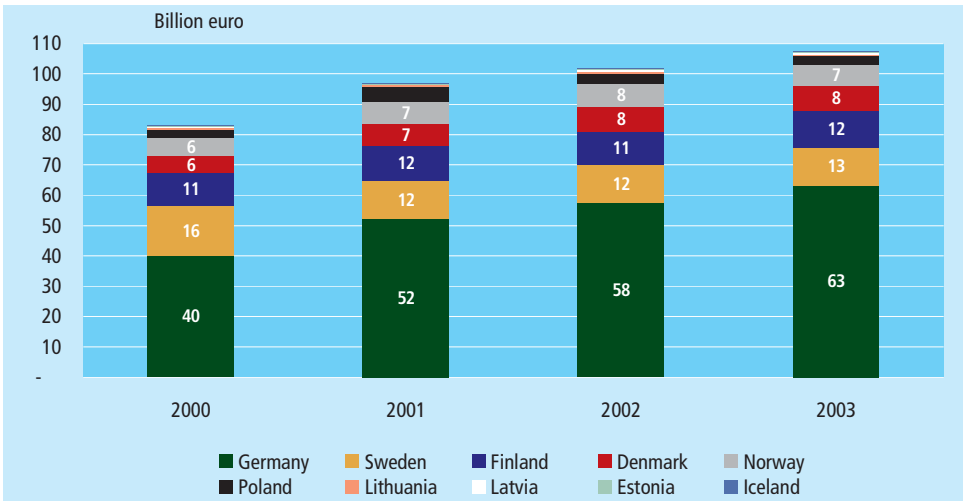


Germany: Excluding ICT manufacturing and ICT wholesale
Poland: Excluding Telecommunications

ICT sector value added increased by 29 per cent

The value added[14] of the ICT sector increased by 29 per cent from 2000 to 2003, to 108 billion euro, cf. figure 8.9.

Figure 8.9 **ICT sector value added. 2000-2003[15]**



Poland: Excluding Telecommunications

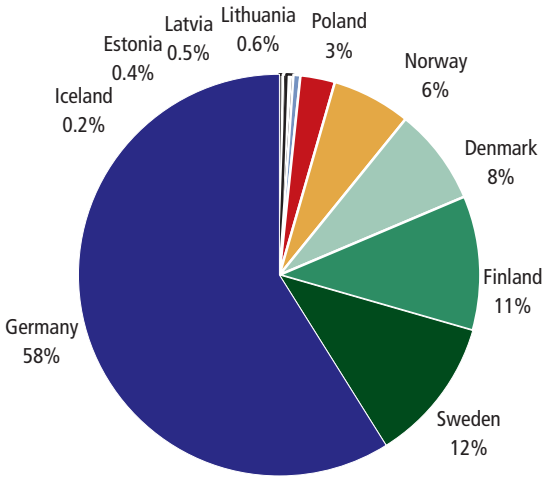
The German ICT sector's contribution to the total value added of the ICT sector in the Baltic Region is 58 per cent in 2003, and thereby at about the same level as the employment share of 60 per cent, cf. figure 8.10. The Finnish and Swedish ICT sectors account for 12 per cent and 11 per cent, respectively. This is more than their shares of employment, which is 10 per cent for Sweden and 7 per cent for Finland.

[13] See footnote no. 9.

[14] Value added is the earnings of the enterprises left to pay for the production factors labour and fixed capital. It is a better indicator of the economic importance of a sector than turnover, indicating its profitability.

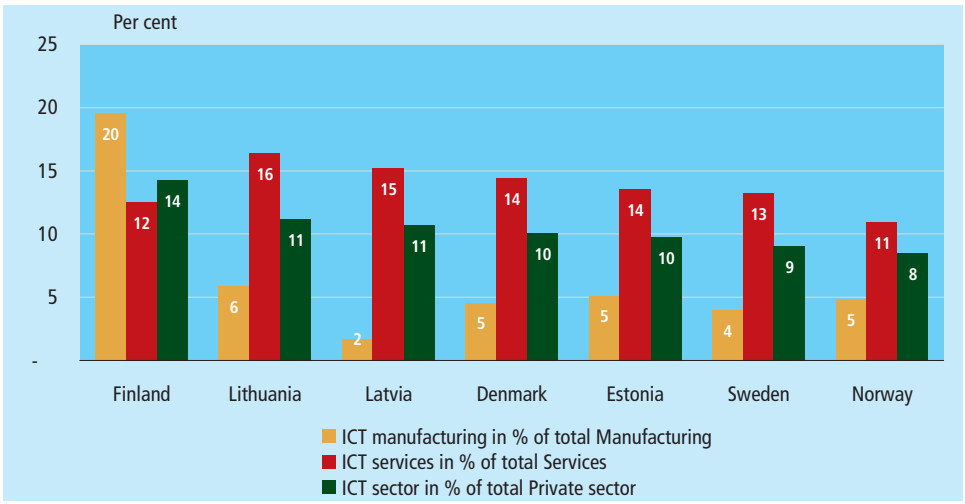
[15] See footnote no. 9.

Figure 8.10 **ICT sector value added. 2003**



The relative size of the ICT sector's value added is shown in figure 8.11. The ICT sector is important in all the Baltic Region countries from which data are available, but especially so in Finland where the ICT sector's share of total value added in the private sector reaches 14 per cent.

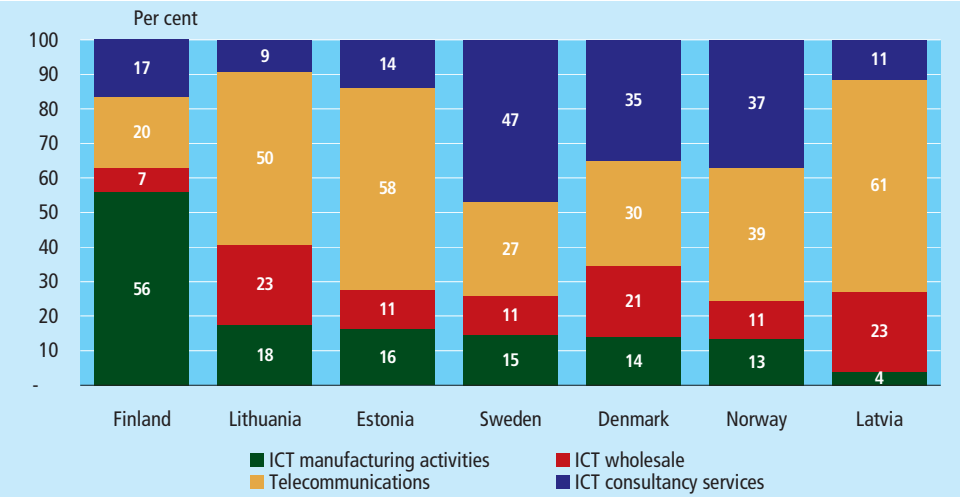
Figure 8.11 **ICT sector value added. 2003**



Estonia: ICT consultancy includes only NACE 72. Activities 65-67 of NACE are excluded from services activities total and private sector total.
Finland: Provisional data for 2004.

The sub-sectors' contribution to total value added differs among the countries as shown in figure 8.12. In Finland, where ICT manufacturing is the largest of the sub-sectors, its contribution to total ICT sector value added is 56 per cent, and in Latvia and Estonia the Telecommunications sector represents approx. 60 per cent of total value added.

Figure 8.12 **ICT sub-sector value added in per cent of total value added of the ICT sector. 2003**



Estonia: ICT consultancy includes only NACE 72.
Finland: Data for 2004.
Poland: Data for Telecommunications are confidential.

8.2 Production of ICT goods

ICT goods: a range of different types

The term *ICT goods* covers a broad range of different types of products, from electronic cables and devices through computers and other hardware to instruments for measuring and checking and, moreover, to the types of products typically intended for private consumers, such as audiovisual equipment[16]. These products are primarily produced by the ICT sector, but other sectors of the economy may of course also provide ICT products for the market.

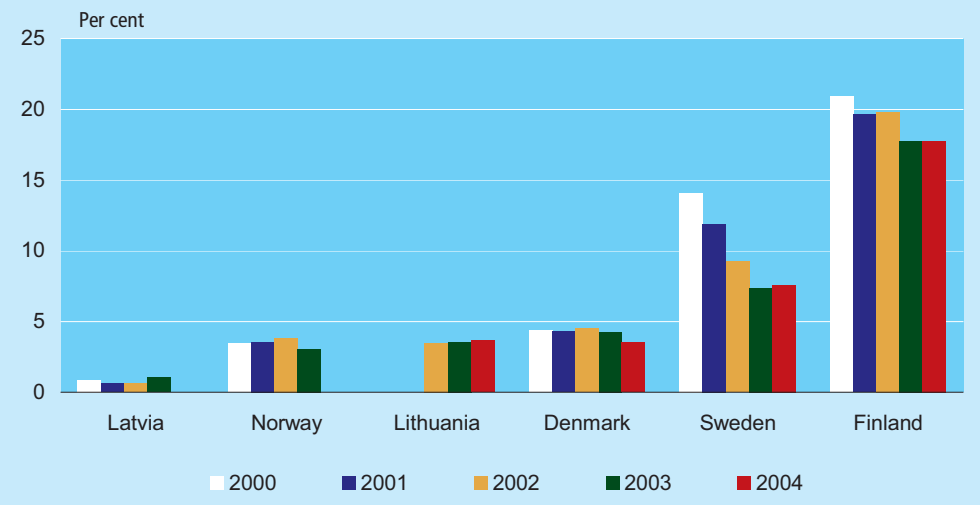
The total production of ICT goods in Denmark, Finland, Latvia, Lithuania, Norway and Sweden reached a value of 30.5 billion euro in 2003.

- Telecommunication equipment is an important part of the production of ICT goods, especially in Finland, where it accounts for 86 per cent of the ICT production
- Electronic components are the second most important type of ICT goods, measured by its share of production value. In Lithuania electronic components represent half of the production value of ICT goods

The composition of the production for Denmark, Finland, Latvia, Lithuania, Norway and Sweden shows that Telecommunication equipment, i.e. mobile phones, television receivers etc., constituted 71 per cent of the production, electronic components 14 per cent and other ICT goods 11 per cent. In total computer and related equipment and audio and video equipment constituted only 2 per cent each.

[16] See list of ICT goods as defined by OECD in Annex 1.

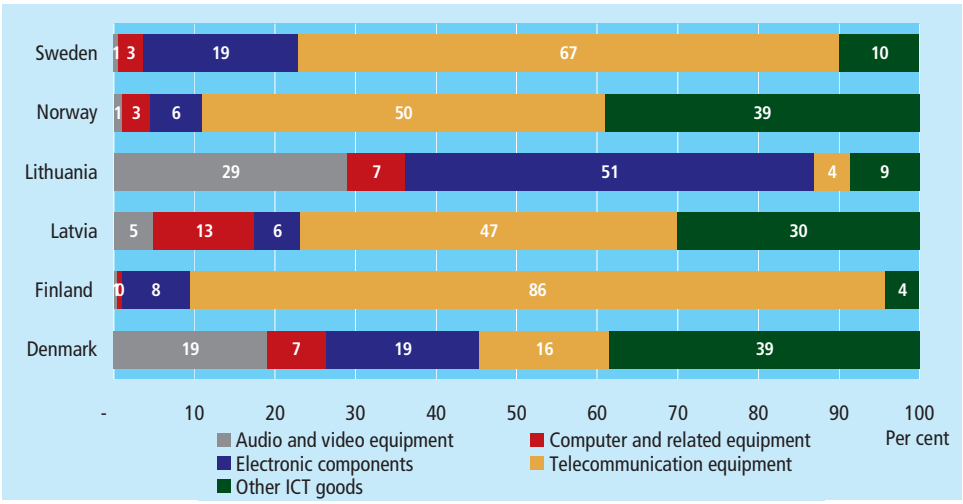
Figure 8.13 **ICT goods production. The share of the total value of production of goods. 2000-2004**



Finland and Lithuania: Provisional figures for 2004.
Iceland is not included. ICT goods production accounts for approx. 0.1 per cent of the total production in the years 2000-2003.

At national level production of audio and video equipment plays a certain role in countries like Lithuania and Denmark, where this type of ICT goods represents 29 per cent and 19 per cent of the production value of ICT goods, cf. figure 8.14. Production of computer and related equipment constitutes 13 per cent of the Latvian production of ICT goods, but accounts for a maximum of 7 per cent in the other countries.

Figure 8.14 **Production value by type of ICT goods. 2004**



Finland and Lithuania: Provisional figures.
Norway and Latvia: Data for2003.

8.3 Foreign trade in ICT products

Trade among countries is an indicator of cross-border relationships and economic interdependency. At the same time exports from a country or region reflect the strength of the production of the individual countries.

– Total exports of ICT goods from the Baltic Region of 104.6 billion euro in 2004, and total imports of 105.2 billion euro

– Internal trade among the countries of the region constitutes 17 per cent of total exports of ICT goods in 2004
– Estonia is the number one Baltic Region intra-trader, with three quarters of its exports of ICT goods directed towards the other countries of the region, and more than half of its ICT imports supplied by the other countries of the region

Total exports of ICT goods from the Baltic Region came to approximately 93 billion euro in 2000[17], rising to 105 billion euro in 2004, or an increase of 13 per cent. During the same period total exports went up by 19.4 per cent.

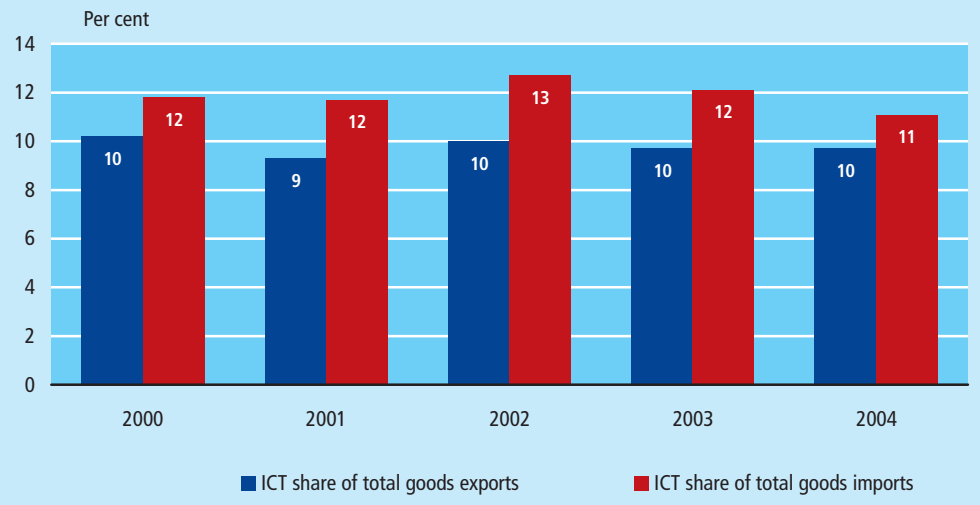
ICT goods imports to the Baltic Region increased by 10.5 per cent from 2000 to a total of 105 billion euro in 2004, whereas total imports increased by 9.5 per cent.

ICT accounts for approximately 10 per cent of imports and exports

Figure 8.15 below shows the Baltic Region's ratio of ICT goods imports and exports, respectively. The export ratio drops from 10.2 per cent in 2000 to 9.7 per cent in 2004. ICT imports show a smaller decrease, from a ratio of 11.8 of total imports in 2000 to 11.1 per cent in 2004.

One reason for the declining ratios of imports and exports of ICT goods may be that the needs of the national markets are satisfied to a higher degree by the national production, but this is not indicated by the figures available. Another and perhaps more likely reason is the declining prices of ICT goods, typically computers etc., as a result of more efficient production processes.

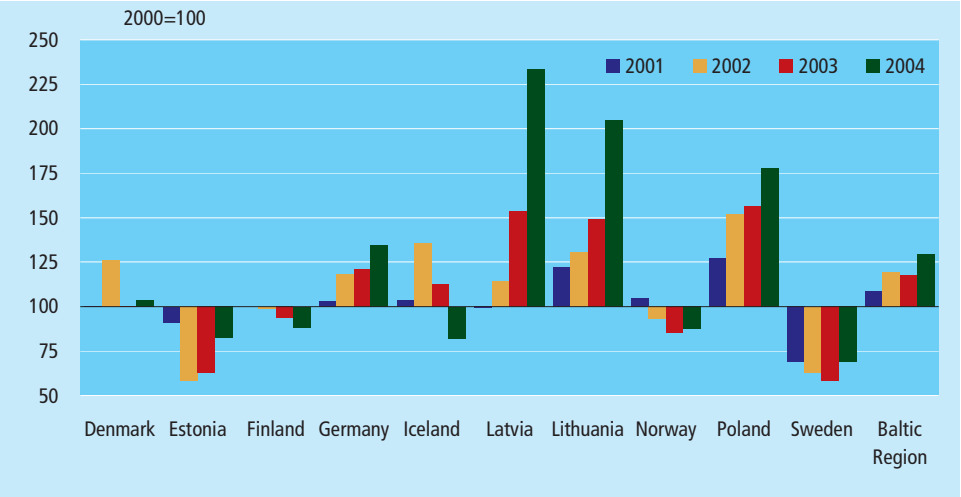
Figure 8.15 **Foreign trade in ICT goods as share of total foreign trade in the Baltic Region. 2000-2004**



At national level large differences can be observed among the countries as far as the development in ICT goods imports and exports is concerned, cf. figures 8.16 and 8.17. In Latvia and Lithuania ICT goods exports more than doubled from 2000 to 2004, whereas Estonia, Finland, Norway and Sweden saw decreases of 12-30 per cent. The development in ICT goods imports shows more or less the same picture: the value of Lithuanian imports more than doubled from 2000 to 2004, whereas the Estonian, Finnish and Swedish imports of ICT goods dropped by approx. 10 per cent during the same period.

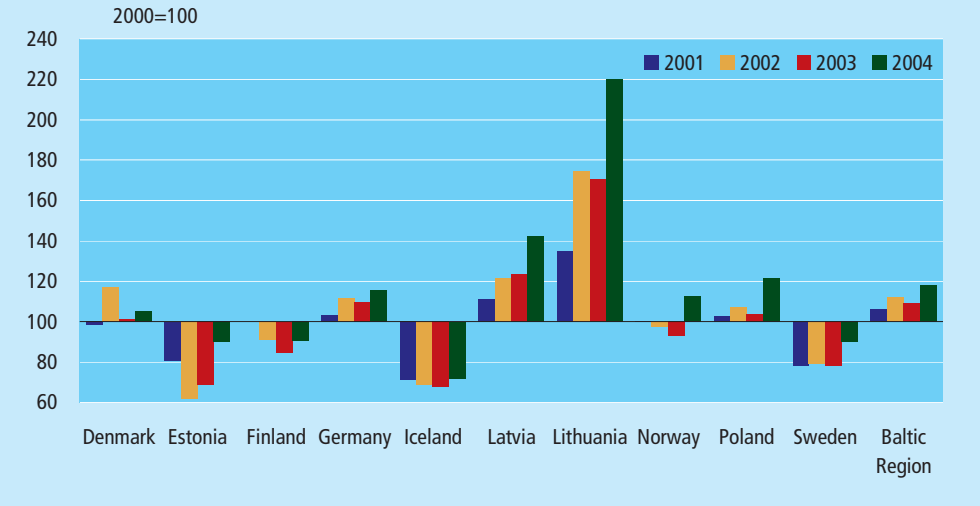
[17] Excluding Iceland and Russia, for which data are not available.

Figure 8.16 **Exports of ICT goods. 2000-2004**



Finland: 2001=100

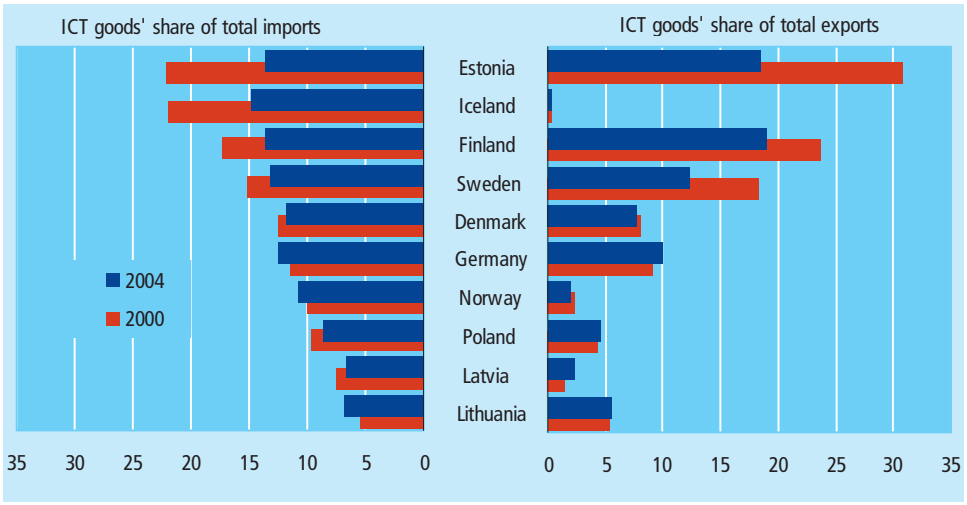
Figure 8.17 **Imports of ICT goods. 2000-2004**



Finland: 2001=100

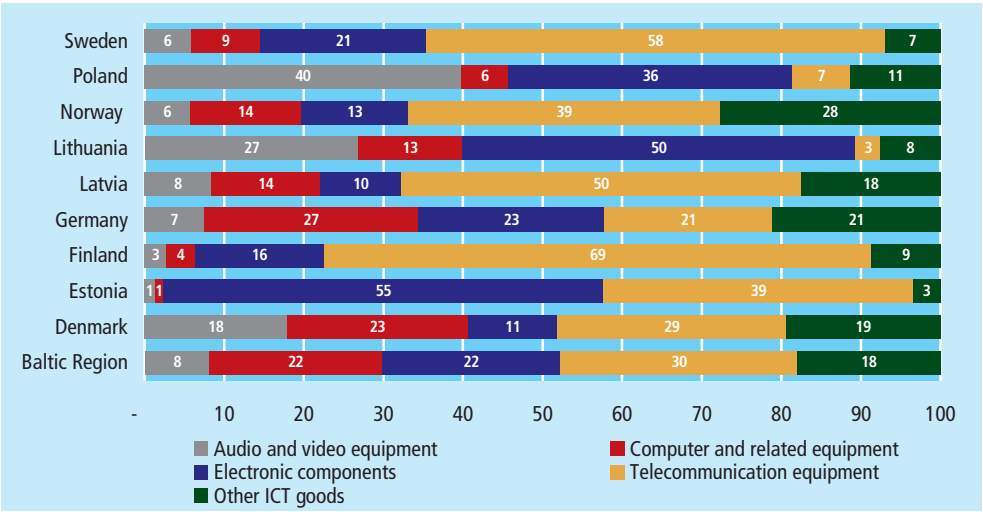
There are considerable differences among the Baltic Region countries in the relative size of foreign trade in ICT goods compared to total foreign trade in goods, which is illustrated in figure 8.18. In most of the countries of the region, the share of foreign trade in ICT goods of total imports and exports declined from 2000 to 2004.

Figure 8.18 **Imports and exports of ICT goods as share of total imports and exports. 2000 and 2004**



The composition of the foreign trade in ICT goods is shown in figures 8.19 and 8.20, from which it can be observed that Telecommunication equipment is the dominant export item for the Baltic Region as a whole, measured by its share of 30 per cent of ICT goods exports in 2004. Computer and related equipment and Electronic components represent 22 per cent each and Other ICT goods 18 per cent. Audio and video equipment is the least important part, constituting 8 per cent of total ICT goods exports in 2004.

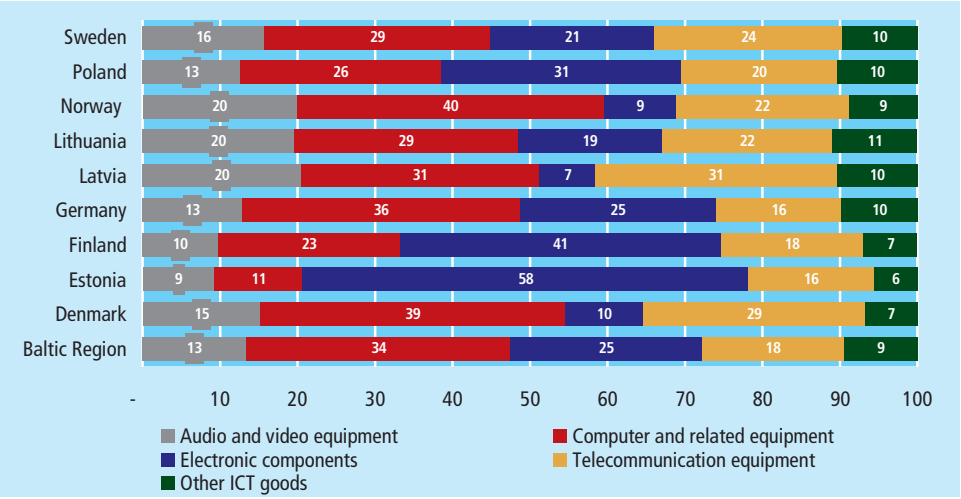
Figure 8.19 **ICT goods exports by type. 2004**



On the import side the picture is different, as Computer and related equipment is the largest import object, representing 34 per cent of total imports of ICT goods in 2004. Electronic components constituted the second largest share, 25 per cent, followed by Telecommunications equipment at 18 per cent.

From the two figures it can also be observed that the pattern of ICT goods imports is much more homogeneous across the countries than ICT goods exports, indicating a broad demand for different types of ICT goods, whether or not there is a national production of certain types of ICT goods.

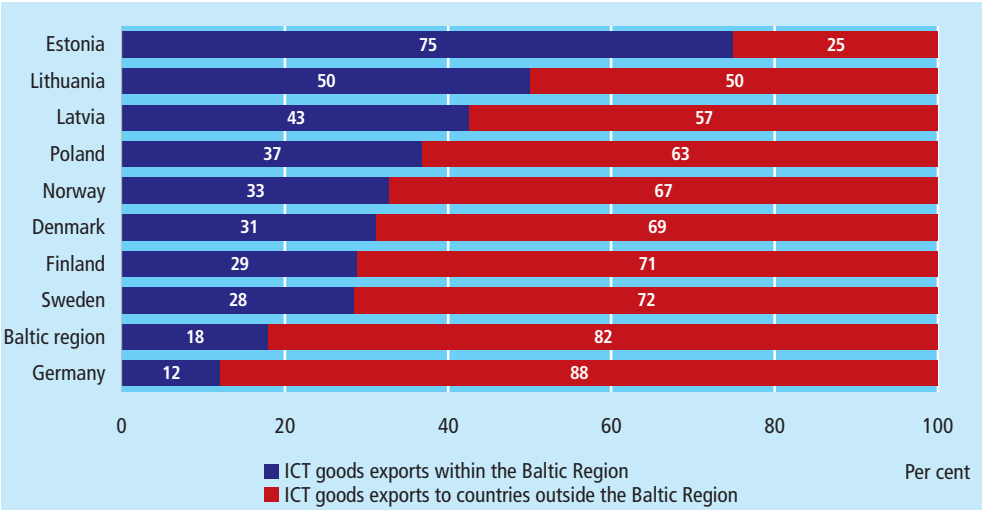
Figure 8.20 **ICT goods imports by type. 2004**



There is a substantial internal trade of ICT goods among the countries of the region. The internal trade in ICT goods, measured as exports of ICT goods, among the countries of the Baltic Region reached 18.1 billion euro in 2004[18], which is approximately 18 per cent of total exports of ICT goods from the countries of the Baltic Region, cf. figure 8.21.

Estonia, Latvia and Lithuania are the top intra-traders of the region, with ICT export shares within the region of approx. 50 per cent or more - and in Estonia as much as three quarters of ICT goods exports go to the other countries of the region. The three countries' shares of ICT imports from the Baltic Region countries constitute 50 per cent or more.

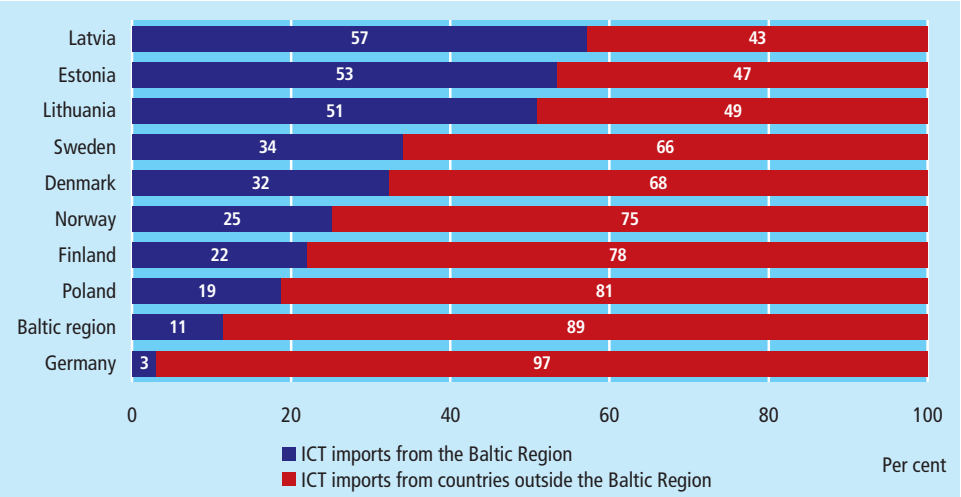
Figure 8.21 **Baltic Region intra-trade in ICT goods as share of total exports of ICT goods[19]. 2004**



[18] Excluding Russia and Iceland for which data are not available.

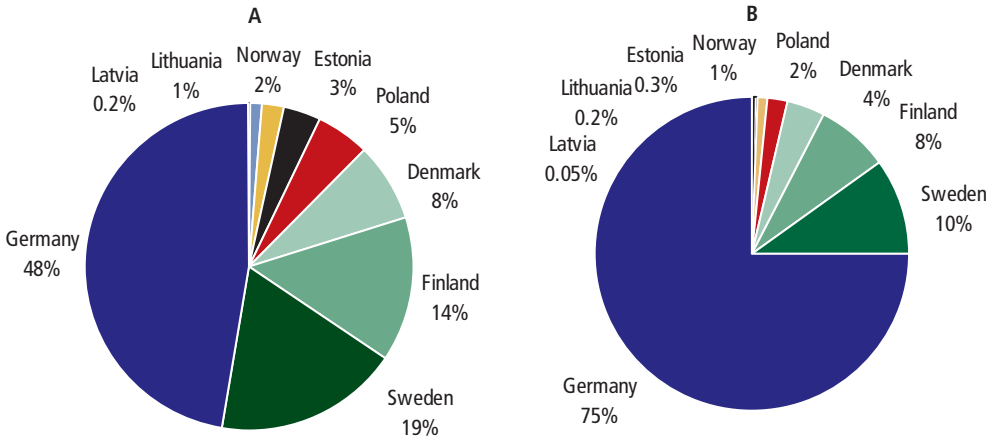
[19] Excluding Russia and Iceland for which data are not available.

Figure 8.22 **Baltic Region intra-trade in ICT goods as share of total imports of ICT goods[20]. 2004**



The contribution of each country to the exports of ICT goods inside and outside the Baltic Region is shown in figure 8.23. Nearly half of the internal trade comes from Germany, 19 per cent from Sweden and 14 per cent from Finland. The other countries represent less than 9 per cent each.

Figure 8.23 **Share of exports of ICT goods inside and outside the Baltic Region. 2004**



A: Exports from one country to another within the Baltic Region
B: Exports to countries outside the Baltic Region

The figures does not sum to 100 per cent as the figures are generally rounded off, except for those countries where figures are smaller than 1 per cent and therefore shown including the decimals.

Looking at the total ICT exports from countries in the Baltic Region to countries outside the region, Germany plays an even larger role with its share of 75 per cent of all exports of ICT goods. The second and third largest export volumes come from Sweden (10%) and Finland (8%), whereas the contribution of the other countries of the region is less than 5 per cent.

[20] Excluding Russia and Iceland for which data are not available.

8.4 Research and development

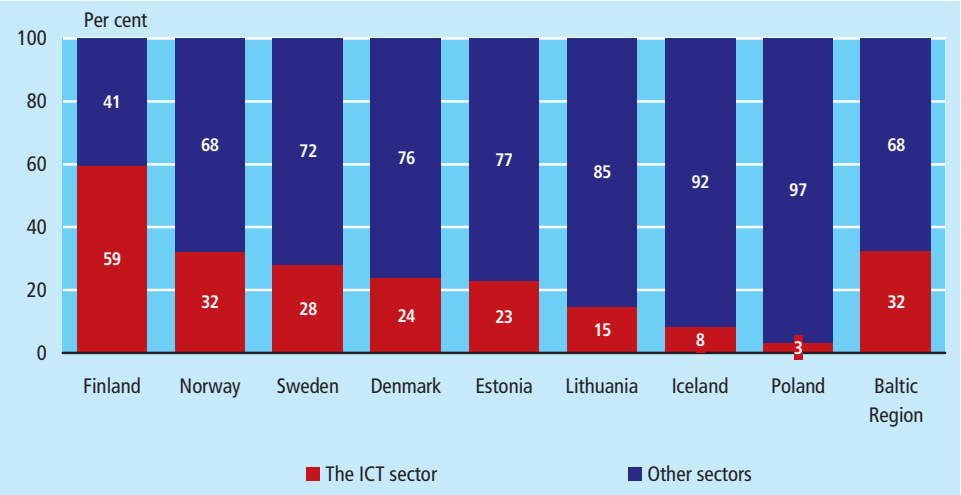
Research and Development (R&D) expenditure is considered an important prerequisite of the development of new products and processes, enabling continuing innovation in business.

- Two thirds of business sector R&D expenses are invested by the ICT sector
- Total ICT sector R&D investments of more than 5.7 billion euro in 2003
- In Estonia, Norway and Denmark the investment share is largest for ICT services - in Finland the ICT manufacturing sector accounts for 86 per cent of ICT sector R&D.

R&D in the ICT sector accounts for 32 per cent of all R&D in the private sector

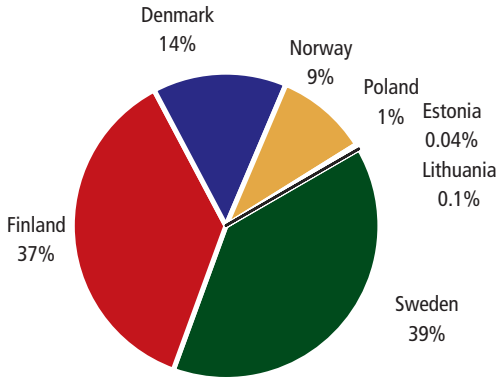
The ICT sector of the Baltic Region (Germany, Latvia and Iceland excluded) invested more than 5.7 billion euro in R&D in 2003. In total, R&D investments of the ICT sector represented 32 per cent of total R&D expenditure of the private sector, cf. figure 8.24. The large share is due to the Finnish and Swedish ICT sectors, which contributed with 76 per cent of the R&D expenditure, cf. figure 8.25.

Figure 8.24 **Expenditure in Research and Development (R&D). 2003**



Estonia: ICT consultancy includes only NACE 72. Total for all sectors is exclusive of NACE 65-67
Finland: ICT consultancy includes only NACE 72. ICT wholesale is not separate, but included in other sectors.
Germany and Latvia: No data available.
Norway: Data for 2004.
The total of the Baltic Region is based on data for the countries for which data are available.

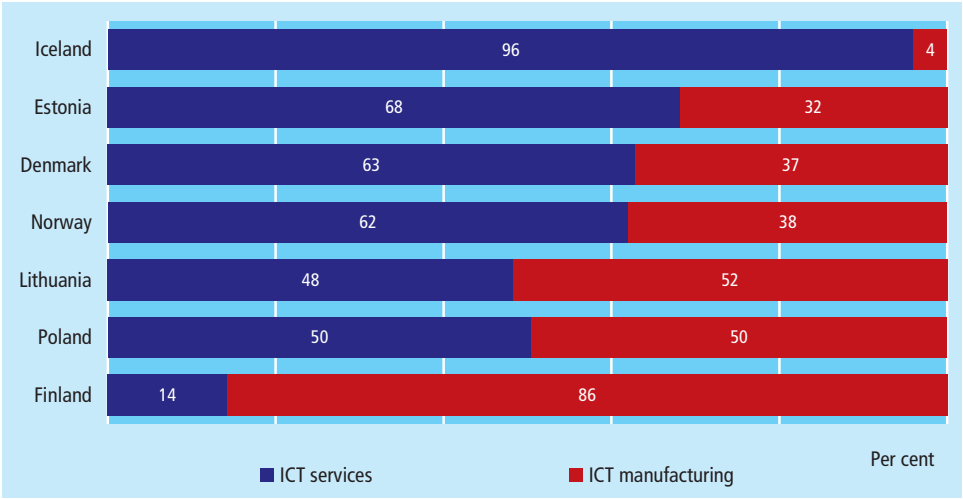
Figure 8.25 **Share of R&D investments of the ICT sector[21]. 2003**



Estonia: ICT consultancy includes only NACE 72
Finland: ICT consultancy includes only NACE 72. ICT wholesale is not separate, but included in other sectors.
The figures does not sum to 100 per cent as the figures are generally rounded off, except for those countries where figures are smaller than 1 per cent and therefore shown including the decimals.

The R&D investment shares of the ICT manufacturing sector and the ICT services sector reflect to a certain degree the relative size and importance of the two parts of the ICT sector. In Estonia, Denmark and Norway ICT services account for approximately two thirds of R&D investments of the ICT sector, cf. figure 8.26. In Lithuania and Poland R&D investments are almost evenly distributed between ICT manufacturing and ICT services, whereas the large Finnish ICT manufacturing sector represents 86 per cent of the ICT sector's total R&D investments.

Figure 8.26 **ICT sector investment in R&D. 2003**



Estonia: ICT consultancy includes only NACE 72. Total for all sectors is exclusive of NACE 65-67.
Finland: ICT consultancy includes only NACE 72. ICT wholesale is not separate, but included in other sectors.
Germany, Iceland, Latvia and Russia: No data available.

[21] Iceland is not included in the figure, as its contribution to the total R&D investment is 0.001 per cent.

8.5 Innovation

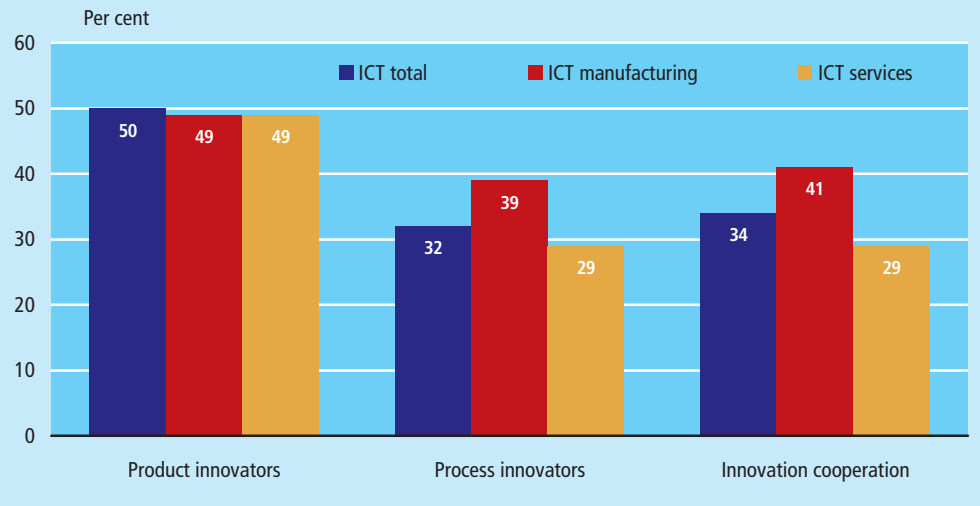
Innovation – the introduction of new or significantly improved products or processes - may be the result of R&D, but may also be created otherwise. Data on innovation is available – totally or partly – from Denmark, Estonia, Finland, Lithuania, Norway and Sweden.

The ICT sector in the region is highly innovative. Compared to other sectors, the frequency of product and process innovators is much higher. At the same time the enterprises in the ICT sector are more frequently engaged in cooperation concerning innovation activities.

- More than 60 per cent of the Norwegian enterprises in the ICT sector have introduced new products to the markets
- 60 per cent of the turnover of the Finnish ICT sector is based on new or improved products

As a rough average 50 per cent of the enterprises in the ICT sector of the region (in the countries for which data are available) are product innovators, and two thirds are process innovators, cf. figure 8.27. Product innovators are found slightly more frequently within ICT services than within ICT manufacturing. On the other hand ICT manufacturing is more often the source of process innovations.

Figure 8.27 **Share of enterprises with product innovations, process innovations and cooperation concerning innovation activities.**

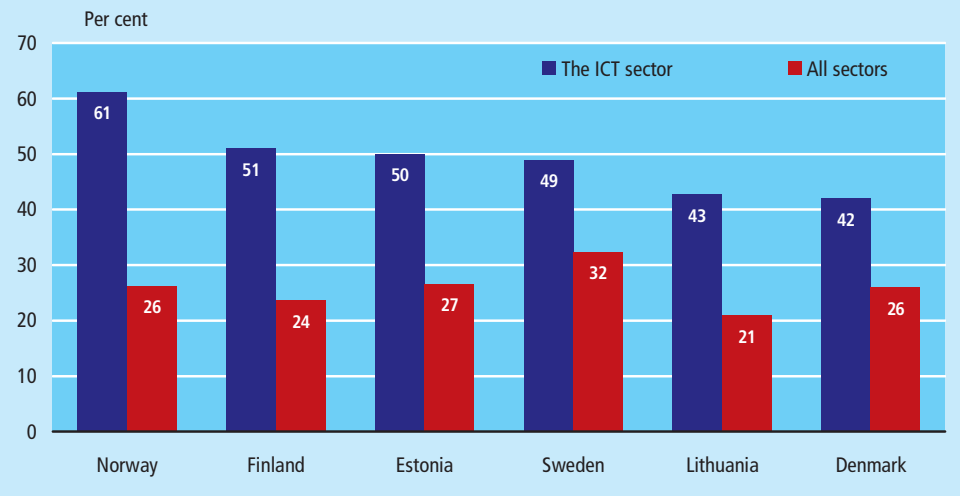


Based on data from Denmark, Estonia, Finland, Lithuania, Norway and Sweden.
Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

Figure 8.28 and figure 8.29 show the distribution of product and process innovators in the ICT manufacturing sector and in the ICT services sector in the countries of the region[22]. In most of the countries there are only small differences in product innovation activity between the ICT manufacturing sector and the ICT services sector, cf. figure 8.28. In Estonia, however, product innovators are mostly found within ICT services, whereas the opposite is the case in Poland.

[22] Data are only available for Denmark, Estonia, Finland, Lithuania, Norway, Poland and Sweden.

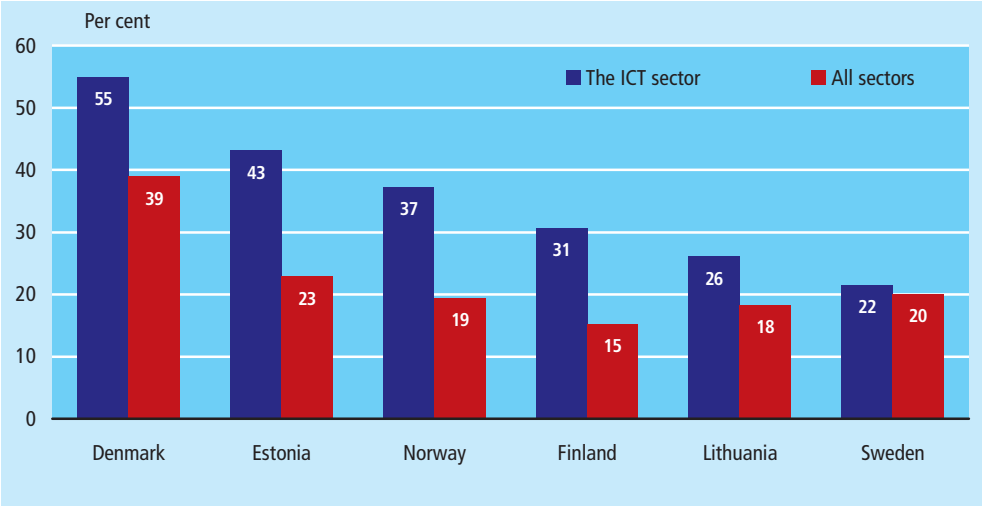
Figure 8.28 **Share of enterprises with new or significantly improved products (goods or services) introduced on the markets.**



Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

Measured by the share of enterprises introducing new or significantly improved products on the market, the ICT sector is more innovative than the sectors of the economy in general, cf. figure 8.28. In Norway more than 60 per cent of the enterprises of the ICT sector have brought new products to the market.

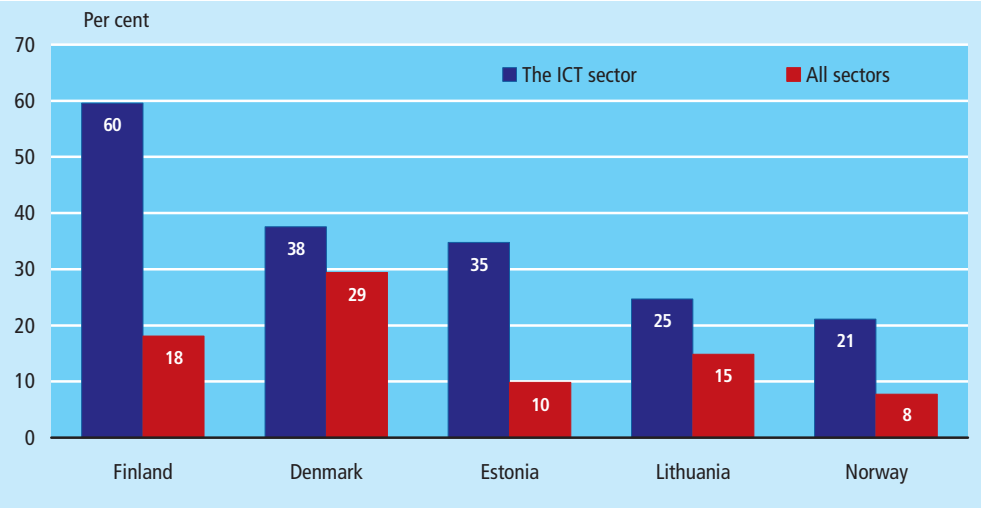
Figure 8.29 **Share of enterprises with new or significantly improved production processes.**



Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

Changing and developing production processes is another area of innovations, where the ICT sector is strong compared to the sectors of the economy in general, cf. figure 8.29. In Denmark 55 per cent of the enterprises of the ICT sector have introduced new or significantly improved production processes, including also methods of supplying services and ways of delivering products.

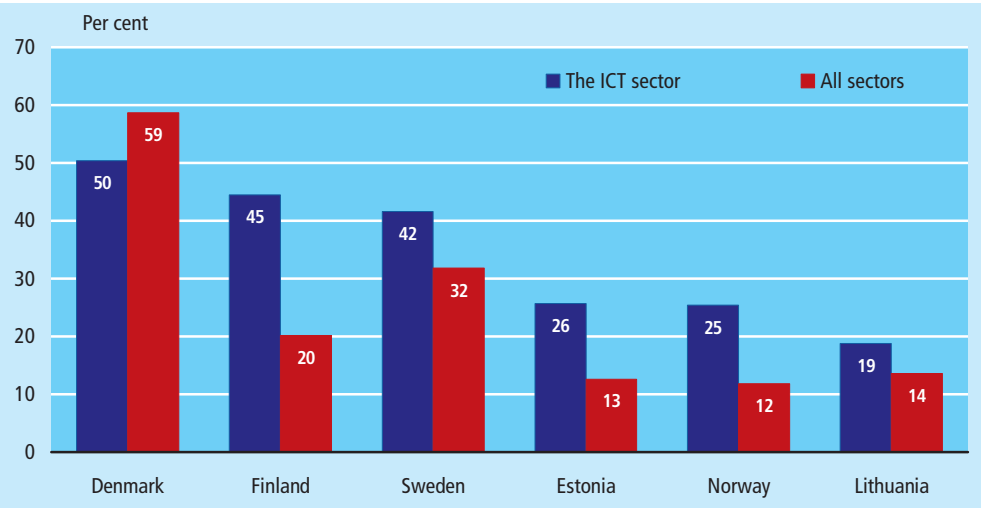
Figure 8.30 **Turnover due to new or significantly improved products (goods or services)**



Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

A substantial variation is seen in the proportion of turnover resulting from new or improved products: Between 20 and 60 per cent of the ICT sector turnover is based on new or improved products, cf. figure 8.30, and in Finland the share is as high as 60 per cent. In Denmark and Estonia more than one third of the ICT sector turnover is based on new or improved products, whereas in Lithuania and Norway the proportion is 21-25 per cent.

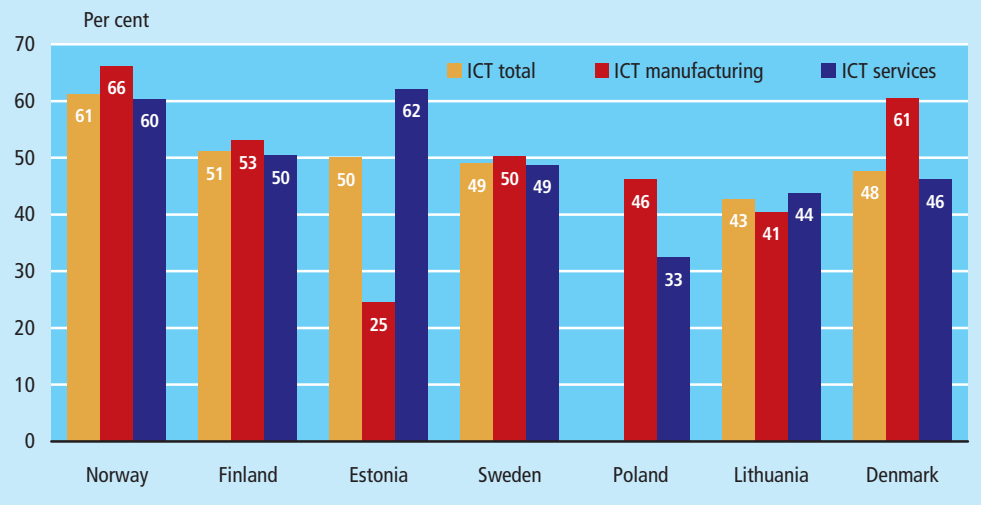
Figure 8.31 **Share of enterprises cooperating with other enterprises or institutions concerning innovation activities**



Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

Enterprises in the ICT sector are more involved in cooperation with other enterprises or institutions concerning innovation than enterprises in general, cf. figure 8.31. This seems especially to be the case in Denmark, where approx. 55 per cent of all ICT enterprises have been engaged in cooperation with others concerning development of new or improved products or processes.

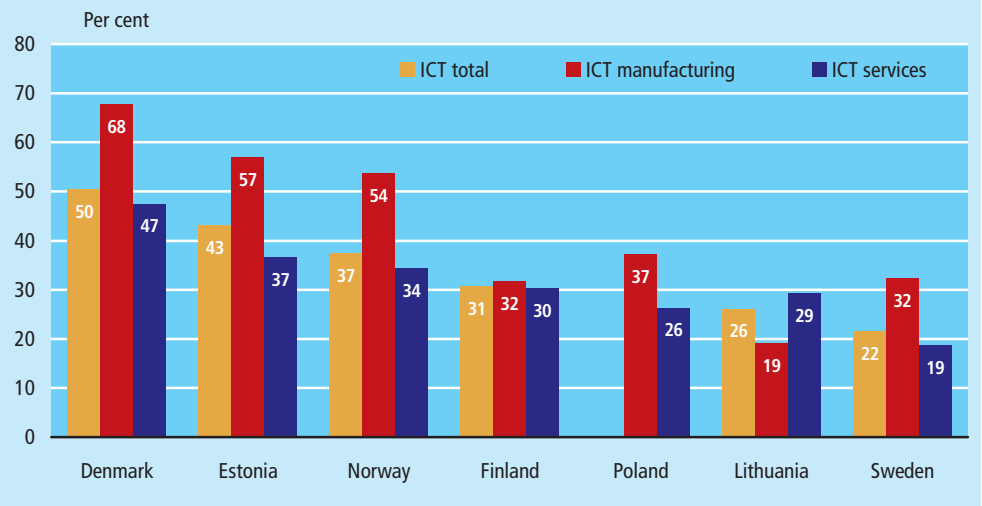
Figure 8.32 **Share of enterprises having introduced new or significantly improved products (goods or services)**



Poland: Data for the ICT sector in general are not available. Data concerning ICT manufacturing are for 1998-2000, and data concerning ICT services are for 2001-2003.
Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

There is a significant renewal of production processes introduced by the ICT sector, cf. figure 8.33. From 22 per cent of the enterprises (in Sweden) to 50 per cent (in Denmark) have introduced new or significantly improved production processes. The enterprises innovating production processes are primarily found in ICT manufacturing, except for Lithuania, cf. figure 8.33.

Figure 8.33 **Share of enterprises having introduced new or significantly improved production processes including methods of supplying services and ways of delivering products**



Poland: Data for the ICT sector in general are not available. Data concerning ICT manufacturing are for 1998-2000, and data concerning ICT services are for 2001-2003.
Reference period for data: Denmark, Finland and Sweden: 2000-2002, Estonia: 2000, Lithuania: 1999-2001, Norway: 1998-2000.

9. Individual national results

9.0 Introduction

Below are presented national results from statistics relating to the Information Society – statistics that go beyond the demands of EU regulations. Only countries, which have reported national analyses or results are included in the text.

9.1 Denmark

Analyses of ICT and productivity

In a set of publications on the development of productivity in Denmark, the National Accounts described the factors which have an important impact on production, including ICT. The analyses are focused not only on macro level impacts, but also on productivity effects on a more disaggregated level, i.e. on industry level.

The analyses show that approx. 14 per cent of the average growth in labour productivity in the period from 1966 to 2003 is explained by ICT capital per hour worked. Overall, the contribution from ICT capital is increasing over time from 0 per cent in the period 1966-1973 to over 30 per cent in the period 2000-2003. From having almost no impact on labour productivity in the first period, the contribution by ICT capital rises over the years and accounts for 21 per cent of the growth in labour productivity in the sub-period 1979-1987. Although total factor productivity and other capital make up much larger shares, the ICT capital is growing in importance.

Looking at three sub-periods from 1987 up until 2003, the positive impact from ICT capital continues. Thus, ICT capital accounts for 31 per cent of the growth in labour productivity in the period 2000-2003.

Survey of ICT expenditures and investments

A Danish survey of ICT expenditures and investments was carried out in the autumn of 2004, based on recommendations from Nordic guidelines on the measurement of ICT investments in enterprises. Micro level data on ICT investment is an important contribution to future analyses, which will seek to better explain and understand the connection between ICT and productivity.

The purpose of the Danish survey is to collect data on enterprises' expenditures and investments in ICT, thereby improving National Accounts estimates. Furthermore, gaining better knowledge of which industries actually have significant ICT expenditures has been requested for some time. The sample size is approx. 3000 enterprises within a broad range of activities, with at least 10 employees. The survey is mandatory and covers a range of activities.

The first results of the Danish data collection were published in the autumn of 2005. The results show that only half of the total ICT expenditures relates to hardware and software (i.e. standard and customised software). Expenditures on ICT services constituted 40 per cent of the total amount, or approx. DKK 11 billion. 8 per cent of the expenditures went to other ICT goods (i.e. telecommunication equipment, audio and video equipment etc.). Expenditures for external ICT education made up 2 per cent of total ICT expenditures.

The industry group, Finance and business activities had the highest level of ICT expenditures with DKK 11.6 billion or 42 per cent of the total amount.

The enterprises capitalised approx. 30 per cent of their total expenditures in 2003. Approx. DKK 3.5 billion of hardware expenditures were capitalised and approx. 2.7 billion DKK of software were capitalised. This corresponds to 51 per cent and 39 per cent, respectively, of total hardware and software expenditures.

Some questions on own account software development were included in the Danish survey. This kind of ICT expenditure is interesting since own account software produced in-house is recorded as Gross Fixed Capital Formation (GFCF), i.e. as an investment, in the National Accounts. In 2003, the enterprises which developed software on own account estimated that 54 per cent of own account software development was for external use, i.e. development of software for the purpose of selling licenses or software for incorporation into the enterprise's products. Correspondingly, 24 per cent of own account software development were for internal use. The last 22 per cent were development destined for maintenance, support, repair etc.

Use of ICT in the public sector

Statistics Denmark has carried out, annually from 2001, a standalone survey on ICT usage in the public sector. The survey is based on a voluntary postal questionnaire.

Indicators in 2004: Case- and document handling systems, digitized forms, external communication, work routines affected, digital services, e-learning and other ICT usages, ICT security, barriers to ICT and digital administration, strategy and cooperation, open source software.

The sample population covers the state, counties and the municipalities. The gross sample consists of all municipalities and counties. In the state sector all ministerial department, major agencies etc. are covered.

The survey is to some extent mutually harmonised with a similar survey from Statistics Norway. The two countries ICT use in municipalities is benchmarked in "Nordic Information Society Statistics 2005".

Main results available in Danish www.dst.dk/it.

9.2 Finland

The research project on "The Finns and the Future Information Society" has been following the use of information and communications technologies in Finland since 1996. In addition to face-to-face interviews in 1996, 1999 and 2002, the project has involved several telephone interviews. During these years of rapid proliferation, the aim has been to monitor ongoing changes by means of cross-sectional reports and at the same time by publishing comparative data. Analysis on the use of ICT is made according to e.g. birth cohorts, region, etc. Reports also include chapters on ICT usage at school. Some of the surveys report separately children's (10+ years old) use of ICT. The following publications are available:

- Finnish people's communication capabilities in interactive society of the 2000s. 2004.
- The Evolution of the Information Society. 2003.
- A Great Migration to the Information Society. 2002.
- Three Years of the Information Society. 2001.
- Mobile Phones and Computer as Part of Everyday Life in Finland. 2000.
- Does the Modern Information Technology Select Its Users. 1998.
- The Finns and Modern Information Technology. 1997.

Statistics Finland has monitored consumers' use of eCommerce since November 2000, including a breakdown for buying or just ordering goods and services with a detailed list of commodities. During this survey round the use of mobile phone has been monitored rather in depth, with questions related to social interaction, communication habits, etc.

Trust and security have been of interest for some years now. Results on attitudes towards risks, new services etc. provide information for the national information security advisory board as well as follow-up of the impacts of their work on the area.

Statistics Finland has published biannually a compilation of Information Society statistics: On the Road to the Finnish Information Society. 2003, 2001, 1999, and 1997.

9.3 Latvia

The Central Statistical Bureau with the financial support of the European Commission, conducted surveys in 2004 on the use of information and communications technologies (ICT) by households and enterprises. Data on Latvia in comparison with other EU member states will be available in the statistical data collection "Information Society in Latvia", which will be published in late November 2005. The Central Statistical Bureau has conducted surveys on the use of ICT since 2001, but the survey on ICT use in households was conducted for the first time in 2004.

The survey on ICT use by households took place in May-June 2004. The results obtained in this survey refer to the second quarter of 2004. In total 6508 households, which were selected by sampling, were interviewed. The data obtained during the interviews were expanded to all Latvian households with at least one person at the age from 16 to 74 years. Data on the population refer only to the age group from 16 – 74 years.

9.4 Lithuania

The Strategy for Statistics Lithuania has set ambitious goals for the area to comply with the EU requirements and meet the national needs. Within Statistics Lithuania an Information Society (IS) Working group consisting of branch statistical divisions was formed in December 2001. It has made an inventory of sources and availability of statistical indicators describing the Information Society. As the issue concerns other line ministries in Lithuania, an Inter-institutional Task Force for defining the Information Society/ Knowledge-based Economy related indicators has been established, followed by a round table discussion organised with all institutions involved in the process.

Methodological manual on statistics for the Information Society and the Knowledge-based Economy

In 2004 Statistics Lithuania participated in National Phare Twining light project LI2002/000.601.03.03.01 "Integration of Information Society Indicators into existing Surveys and Statistics". The partner of this project was Statistics Denmark. The global objective was to design, develop and validate an integrated system for efficient statistical measurement and for statistics on the IS/Knowledge-based society. During the project the methodological documentation on Information Society/Knowledge-based economy statistics (manual of IS/KE statistics indicators, recommendations of organisations surveys, and IS / KE indicators database) was prepared.

ICT survey in Lithuanian health institutions

For the first time a survey on the use of information technologies in Lithuanian health care institutions was carried out in spring 2005. The purpose of the survey was to learn about the extent of use of information technologies (computers, Internet) in health care institutions having 10 or more employees (NACE Rev. 1.1, 85.1 groups), and to measure electronic services, which health institutions offer to citizens. The survey questionnaire was based on Eurostat model questionnaire on ICT usage and questions about e-health services and e-interactions were attached.

ICT survey in public administration institutions

Statistics Lithuania like the statistical institutions in the Nordic countries, conduct a stand-alone ICT usage survey in public administration institutions. The population of this survey is public institutions with 10 and more employees and economic activity –

section L (NACE 1.1) and covers the state (ministries, departments), counties and municipalities institutions. Survey has carried out annually from 2003.

Pilot survey of ICT expenditures and investments

A Lithuanian survey of ICT expenditures and investments will be carried out in December of 2005, based on Eurostat recommendations on the measurement of ICT investments in enterprises. The purpose of the ICT expenditures survey is to collect data on enterprises' expenditures and investments in ICT, thereby improving National Accounts estimates. The sample size is approx. 1000 enterprises within a broad range of activities, with at least 10 employees.

Publications about Information Society statistics

Since 2003 Statistics Lithuania has annually published a compilation of Information Society and Knowledge based economy statistics: *Information technologies in Lithuania*. This publication presents information about the ICT sector in Lithuania, the Lithuanian telecommunications and audiovisual market, productions of ICT goods, imports and exports of ICT products, ICT usage in households (individuals), enterprises, public administrations and health education institutions, as well as main statistical indicators on R&D and innovations.

9.5 Poland

In 2005 the Central Statistical Office of Poland carried out a survey on ICT usage **by children aged 12-15**. Generally children were willing to take part in the survey, and theirparents did not oppose to their children participating.

At the moment data is being analysed, but a few **key findings** about the youngest ICT users can be presented.

It is interesting to note that children constitute the age group where the share of computer users during the last three months is highest. The same applies to regular Internet usage (every day or at least once a week).

Children in Poland most frequently use the computer and the Internet at their place of education, which is the only place of access for almost one third of them. Home is the second place where they use computers and the Internet.

Almost half of the children aged 12-15 use a computer 1-5 hours a week, and nearly one in four uses it from 5 hours to 20 hours a week.

The share of Internet users in the group of children is also higher than in most other age groups with the exception of persons aged 16-24, who are the leaders in the category of Internet usage during the last three months.

It is not a big surprise that children take the lead in using the Internet for chatting and playing or downloading games, images or music.

If children purchase via the Internet, the majority of them spend no more than 115 euro. Clothes and sports goods are the key objects of their purchases. There is no other age group so interested in buying this sort of goods. Also many children order films and music over the Internet.

Among the children who have used a computer, almost all children are able to use the mouse, more than three quarters are able to copy or move a file or folder, two thirds can use copy and paste tools to duplicate or move information within a document, and one third knows how to use basic arithmetic formulas in a spreadsheet.

The second most frequent skill of the young Internet users - after using a search engine (e.g. Google or Yahoo!) to find information - is posting messages to chat rooms, newsgroups or online discussion forums. The subsequent skills are sending e-

mails with attached files and using peer-to-peer file sharing software (e.g. Kazaa, Napster) for exchanging movies, music, etc.

How did the children obtain these e-skills?
Mostly they learned them at school, but almost half of the children responded that they have learned by informal assistance from relatives and friends, or by self-study in the sense of learning-by-doing, while using the computer or the Internet.

9.6 Sweden

A study on measuring the impact of ICT on productivity was carried out at Statistics Sweden in 2005 by J. Zeed and H-O Hagén (*Does ICT matter for firm productivity?*). The purpose was to see if ICT has a positive impact on enterprises' productivity, however not to measure the size of this effect, if any.

Survey data from the survey Use of ICT in Swedish Enterprises 2003 was used complemented with data from Structural Business Statistics and longitudinal data on the population's education, income and occupation.

The overall conclusion was that ICT does matter for productivity. Moreover, the more advanced an enterprise's ICT-use is the more productive it tends to be.

10. Future plans concerning development of Information Society Statistics

10.0 Introduction

This chapter presents a range of future plans for the development of Information Society statistics. Not all countries have plans for further development of this area of statistics, but for those presented below show that interesting results may be expected in new areas in the next years.

10.1 Denmark

Statistics Denmark intends to carry out a survey concerning the use of digital media in the content and communication sector. The survey will have two aims: to form the basis of an analysis of the use of digital media, constituting a basis for the forthcoming revision of ISIC and NACE in 2008. Secondly the data is intended for an analysis of the degree to which the content sector and the ICT sector are melting together.

Effect and micro analyses of ICT usage

Special micro level analyses are planned for 2006-2007, concerning enterprises' use of ICT. Dataset from 'Use of ICT in Danish enterprises' will be combined with economic data on firm level as well as data on employees. Topics that might be covered are effect and productivity from ICT usage and employee profile of enterprises with intensive ICT usage.

10.2 Estonia

The Information Society is a relevant statistical field, dealing with the wide development of ICT technology and information in digital form and the wide range of topics, which are needed for policy purposes. The progress of Information Technology in Estonia has been very fast and Estonia has several information policy projects.

Statistical Office of Estonia will continue surveying “ICT in households” and “ICT in enterprises” in future.

The survey on ICT in enterprises is based on the Eurostat questionnaire “Community Survey on ICT usage in enterprises”. The purpose of this survey is to receive data about information systems in enterprises, the use of Internet, e-commerce, electronic data interchange and problems in using Internet.

The survey on ICT in households is based on the Eurostat questionnaire “Community Survey on ICT usage in households and by individuals”. The purpose of this survey is to receive data about use of computers and the Internet, actions and disadvantages in e-commerce, use of information technology and etc.

In 2006 we will carry out for the first time a special survey about ICT usage in enterprises of the financial sector. This survey will be based on the Eurostat questionnaire “Community Survey on ICT Usage and E-commerce in Enterprises of the Financial Sector.

10.3 Finland

Statistics Finland will start asking about ICT investments in SBS collection and include extra questions on ICT investments in the standard collection for Statistics on the finances and activities of municipalities and joint municipal authorities from 2006. The first results for both will be available during 2006.

10.4 Latvia

The goals set out for the information society statistics in future are the following:

- to study and assess the application of administrative data sources in the field of telecommunications;
- to promote online submission of surveys in the CSB e-surveys data base and hence decrease the work input necessary for collection of statistical information as well as respondents' load;
- to study the possibility to conduct household interviews by phone and thus economise the working time of interviewers and transport costs.
- regularly check the compliance of the information obtained by means of statistical surveys with the needs of users and Eurostat requirements;
- to take regular measures for improvement of data quality
- to assess the comprehensibility of surveys and improve it, taking into account respondents' opinion, most frequent mistakes met, as well as changes in methodology;
- to improve the guidelines on survey completion;
- to gather information on statistical working methods of other
- departments of the CSB and EU Member States and assess the efficiency of their introduction;
- to decrease the load of respondents by optimising the sample, making forms more simple, improving the explanations regarding the completion of forms and using administrative data sources.
- to prepare data for publishing in public databases of the CSB website.

10.5 Lithuania

Statistics Lithuania has the following plans regarding the development of Information Society statistics:

- In spring 2006 the results of the ICT investment survey will be published
- Statistics Lithuania plan in 2006 to make an analysis of the possibilities to organise an ICT usage surveys in micro enterprises (with 0-9 employees). Provided the results of the analysis are positive it is the plan to start the survey in 2007
- To reduce the respondent burden Statistics Lithuania plan to organize the survey on ICT usage in public administration and health institutions biannually. This means that in 2006 the survey on ICT usage in public institutions will be carried out and in 2007 the survey for health institutions

10.6 Poland

The CSO of Poland plans to conduct all the surveys which will follow from the Regulation 808/2004 and also take part in new projects announced by Eurostat.

An ICT-investment pilot project in 2005/2006 is one of them. It is devoted to the development of the methodology of measuring investments and expenditure in ICT, as well as to identifying factors which limit the benefits of such outlays.

The first edition of a publication on the Information Society by the CSO will be ready at the beginning of 2007. It will include data from three surveys on ICT usage carried out in the years 2004-2006 and information on the ICT sector.

10.7 Sweden

During 2005-2006 Statistics Sweden carries out a pilot study on ICT investments and expenditures as a Eurostat project. The aim of the study is to develop and test methods for measuring ICT investments and expenditures in the enterprise sector as well as in the public sector.

As start, the approach is face-to-face interviews with ICT-managers or accounting managers and in a second phase questionnaires will be sent out and followed up by telephone interviews. Moreover, so called expert interviews with ICT-managers will be carried out in order to collect expert views on factors affecting impacts of ICT investments and expenditures on the productivity.

As the demand for statistics describing ICT investments and expenditures in the enterprise sector is great, by national accounts as well as by economic analysts, a full scale survey on ICT investments and expenditures will most likely be carried out in 2006 or, at the latest, in 2007.

Other fields within information society statistics of great interest and very much wanted by Swedish users would be surveys on ICT-usage in the public sector and ICT-usage in schools. However, no concrete plans to carry such surveys out exist at the moment.

Annex 1. Definitions of ICT sector, ICT products and levels of education

1. Definition of ICT sector, based on NACE, rev.1.1 nomenclature

	ICT manufacturing industry:
3001	Manufacture of office and accounting machinery
3002	Manufacture of computing machinery
3130	Manufacture of insulated wire and cable
3210	Manufacture of electronic valves and tubes and other electronic components
3220	Manufacture of television and radio transmitters and apparatus for in telephony and line telegraphy
3230	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods
3320	Manufacture of instruments and appliances for measuring, checking, testing and navigating
3330	Manufacture of industrial process control equipment
	ICT services:
Wholesale	
5143	Wholesale of electrical household appliances and radio and television goods
5184	Wholesale of computers, software and telecommunication equipment
5186	Wholesale of electronic equipment
5187	Wholesale of electric installation material and other machines
Telecommunications	
6420	Telecommunications
Consultancy services	
7133	Renting of office machinery and equipment, including computers
7210	Hardware consultancy
7221	
7222	Software consultancy and supply
7230	Data processing
7240	Database activities
7250	Maintenance and repair of office, accounting and computing machinery
7260	Other computer related activities

In order to measure the relative size and importance of the ICT sector, the data supplied by the countries also cover:

- The total manufacturing industry (NACE 15-37)
- The total services sector (NACE 50-74, 92), and
- The total private sector (NACE 15-37, 45, 50-74, 92, 93).

2. Definition of ICT products by PRODCOM

Prodcom	HS	Description
		Audio- and video equipment
24651000	852311	Magnetic tapes, unrecorded, width <= 4 mm (1/6 in.) (2)
24651000	852312	Magnetic tapes, unrecorded, width > 4 mm (1/6 in.) but <= 6.5 mm (1/4 in.) (2)
24651000	852313	Magnetic tapes, unrecorded, width > 6.5 mm (1/4 in.) (2)
24651000	852320	Magnetic discs, unrecorded (2)
24651000	852390	Other prepared unrecorded media for sound recording or similar recording of other phenomena, other than products of Chapter 37
25249027	852290	Parts and accessories suitable for use solely or principally with the apparatus of headings Nos. 85.19 to 85.21 - other
32301155	852712	Pocket-size radio cassette-players capable of operating without an external source of power
32301155	852713	Radio-broadcast receivers, capable of operating without an external source of power, combined with than products of Chapter 37 sound recording or reproducing apparatus
32301159	852719	Other radio-broadcast receivers, capable of operating without an external source of power, not combined with sound recording or reproducing apparatus
32301175	852731	Other radio-broadcast receivers, including apparatus capable of receiving also radio-telephony or radiotelegraphy, combined with sound recording or reproducing apparatus
32301177	852732	Other radio-broadcast receivers, including apparatus capable of receiving also radio-telephony or radiotelegraphy, not combined with sound recording or reproducing apparatus but combined with a clock
32301179	852739	Other radio-broadcast receivers, including apparatus capable of receiving radio-telephony or radiotelegraphy, n.e.s.
32301270	852721	Radio-broadcast receivers with sound recording or reproducing apparatus, for motor vehicles, requiring external source of power
32301290	852729	Other radio-broadcast receivers for motor vehicles, not combined with sound recording or reproducing apparatus
32302020	852812	Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, colour
32302020	852830	Video projectors
32302030	852812	
32302045	852821	Video monitors, colour
32302049	852821	
32302050	852812	
32302060	852812	
32302075	852812	
32302079	852812	
32302083	852822	Video monitors, black and white or other monochrome
32302085	852813	Reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus, black and white or other monochrome
32303135	851910	Coin- or disc-operated record-players
32303139	851921	Record-players, without loudspeaker
32303139	851929	Record-players, n.e.s.
32303139	851931	Turntables with automatic record changing mechanism
32303139	851939	Turntables, n.e.s.
32303150	851940	Transcribing machines
32303175	851992	Pocket-size cassette-players
32303175	851993	Other sound reproducing apparatus, cassette-type
32303179	851999	Sound reproducing apparatus, not incorporating a sound recording device, n.e.s.
32303230	852010	Dictating machines not capable of operating without an external source of power
32303275	852032	Other magnetic tape recorders incorporating sound reproducing apparatus, Digital audio type
32303275	852033	Other magnetic tape recorders incorporating sound reproducing apparatus, cassette-type
32303279	852032	
32303279	852039	Other magnetic tape recorders incorporating sound reproducing apparatus
32303290	852090	Magnetic tape recorders and other sound recording apparatus, whether or not incorporating a sound reproducing device, n.e.s.
32303335	852540	Still image video cameras and other video camera recorders, digital cameras
32303339	852110	Video recording or reproducing apparatus, whether or not incorporating a video tuner - magnetic tapetype
32303350	852110	
32303370	852190	Video recording or reproducing apparatus, whether or not incorporating a video tuner - other type
32304100	851810	Microphones and stands therefor
32304235	851821	Single loudspeakers, mounted in their enclosures
32304237	851822	Multiple loudspeakers, mounted in the same enclosure
32304239	851829	Other loudspeakers, n.e.s
32304270	851830	Headphones and earphones, whether or not combined with a microphone, and sets consisting of a microphone and one or more loudspeakers

Prodcom	HS	Description
32304355	851840	Audio-frequency electric amplifiers
32304359	851840	
32304370	851850	Electric sound amplifier sets
32305130	852210	Parts and accessories suitable for use solely or principally with the apparatus of headings Nos. 85.19 to 85.21 - pick-up cartridges
32305150	852290	
32305170	852290	
32305180	851890	Parts of microphones, loudspeakers, headphones, earphones, combined microphone/loudspeaker sets, audio-frequency electric amplifiers and electric sound amplifier sets
		Computer and related equipment
30021100	847110	Analogue or hybrid automatic data processing machines
30021200	847130	Portable digital automatic data processing machines, weighing not more than 10 kg, consisting of at least a central processing unit, a keyboard and a display
30021300	847141	Digital automatic data processing machines comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined
30021400	847149	Other digital automatic data processing machines, presented in the form of systems
30021500	847150	Digital processing units other than those of subheadings 8471.41 and 8471.49, whether or not containing in the same housing one or two of the following types of unit : storage units, input units, output units
30021630	847160	Automatic data processing machines, input or output units, whether or not containing storage units in the same housing
30021670A	847160	
30021673B	847160	
30021677B	847160	
30021679B	847160	
30021730	847170	Automatic data processing machines, storage units
30021755	847170	
30021757	847170	
30021770	847170	
30021790	847170	
30021800	847180	Other units of automatic data processing machines
30021800	847190	Magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included
30021900	847330	Parts and accessories of the machines of heading No. 84.71
		Electronic components
22331070	852460	Cards incorporating a magnetic stripe, recorded (2)
24651000	852330	Cards incorporating a magnetic stripe, unrecorded (2)
25249030A	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
25249032B	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
25249034B	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
25249040A	854290	Parts for electronic integrated circuits and microassemblies
25249043B	854290	Parts for electronic integrated circuits and microassemblies
25249047B	854290	Parts for electronic integrated circuits and microassemblies
31104233	850431	Electrical transformers having a power handling capacity not exceeding 1 kVA (2)
31104235	850431	Electrical transformers having a power handling capacity not exceeding 1 kVA (2)
31105080	850450	Inductors (2)
31106203	850490	Parts of: electrical transformers, static converters (for example, rectifiers) and inductors (2)
31106205	850490	Parts of: electrical transformers, static converters (for example, rectifiers) and inductors (2)
31106207	850490	Parts of: electrical transformers, static converters (for example, rectifiers) and inductors (2)
31621110	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
31621130	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
31621630	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
32101230	853221	Capacitors, fixed, tantalum having a reactive power handling capacity of less than 0.5 kvar
32101275	853224	Capacitors, fixed, ceramic dielectric, multilayer having a reactive power handling capacity of less than 0.5 kvar
32101300	853230	Variable or adjustable (pre-set) capacitors
32102020	853310	Fixed carbon resistors, composition or film types
32102035	853321	Electrical resistors, fixed, (including rheostats and potentiometers), other than heating resistors, for a power handling capacity <= 20 W

Prodcom	HS	Description
32102037	853329	Electrical resistors, fixed, (including rheostats and potentiometers), other than heating resistors, n.e.s..
32102055	853331	Wirewound variable resistors, for a power handling capacity <= 20 W
32102057	853339	Wirewound variable resistors, for a power handling capacity <= 20 W
32102070	853340	Other variable resistors, including rheostats and potentiometers
32103050	853400	Printed circuits
32103070A	853400	Printed circuits
32103075B	853400	Printed circuits
32103077B	853400	Printed circuits
32103090	853400	Printed circuits
32104135	854011	Cathode-ray television picture tubes, including video monitor tubes, colour
32104137	854012	Cathode-ray television picture tubes, including video monitor tubes, black and white or other monochrome
32104139	854040	Data/graphic display tubes, colour, with a phosphor dot screen pitch smaller than 0.4 mm
32104139	854050	Data/graphic display tubes, black and white or other monochrome
32104139	854060	Other cathode-ray tubes
32104150	854020	Television camera tubes; image converters and intensifiers; other photo-cathode tubes
32104200	854071	Microwave tubes, magnetrons, excluding grid-controlled tubes
32104200	854072	Microwave tubes - klystrons, excluding grid-controlled tubes
32104200	854079	Microwave tubes, other, excluding grid-controlled tubes
32104200	854081	Receiver or amplifier valves and tubes
32104200	854089	Valve and tubes, n.e.s.
32105125	854110	Diodes, other than photosensitive or light emitting diodes
32105155	854121	Transistors, other than photosensitive, dissipation rate < 1 W
32105157	854129	Transistors, other than photosensitive transistors, n.e.s.
32105170	854130	Thyristors, diacs and triacs, other than photosensitive devices
32105235	854140	Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes
32105237	854140	Photosensitive semiconductor devices, including photovoltaic cells whether or not assembled in modules or made up into panels; light emitting diodes
32105250	854150	Other semiconductor devices
32105270	854160	Mounted piezo-electric crystals
32106013	854210	Cards incorporating electronic integrated circuits ("smart" cards) (3)
32106015	854221	Digital monolitihic integrated circuits (3)
32106017	854221	Digital monolitihic integrated circuits (3)
32106025	854221	Digital monolitihic integrated circuits (3)
32106027	854221	Digital monolitihic integrated circuits (3)
32106034	854221	Digital monolitihic integrated circuits (3)
32106054	854221	Digital monolitihic integrated circuits (3)
32106065	854221	Digital monolitihic integrated circuits (3)
32106069	854221	Digital monolitihic integrated circuits (3)
32106070	854221	Digital monolitihic integrated circuits (3)
32106095	854229	Other monolithic integrated circuits (3)
32106097	854260	Hybrid integrated circuits (3)
32106099	854270	Electronic microassemblies (3)
32107200	853390	Parts for electrical resistors (including rheostats and potentiometers), other than heating resistors
32107320	854091	Parts of cathode-ray tubes
32107330	854099	Parts of thermionic or photo-cathode, valve and tubes, other than cathode-ray tubes
32107350	854190	Parts for semiconductor devices
32107370	854290	Parts for electronic integrated circuits and microassemblies
32305280	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
3230528020	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
3230528030	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
3230528090	852990	Parts suitable for use solely or principally with the apparatus of headings Nos. 85.25 to 85.28 except aerials and aerials reflectors
		Other ICT goods
30011100	846911	Word-processing machines
30011320	847010	Electronic calculators capable of operation without an external source of electric power and pocket-size data recording, reproducing and displaying machines with calculating functions
30011320	847021	Other electronic calculating machines incorporating a printing device
30011320	847029	Other electronic calculating machines
30011330	847040	Accounting machines
30011350	847050	Cash registers

Prodcom	HS	Description
30011430	847310	Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with machines of heading No. 84.69
30011450	847321	Parts and accessories of the electronic calculating machines of subheading No. 8470.10, 8470.21 or 8470.29
30021900	847350	Parts and accessories equally suitable for use with machines of two or more of the headings Nos. 84.69 to 84.72
33101115	902212	Computed tomography apparatus (2)
33101115	902213	Other apparatus based on the use of X-rays, for dental uses (2)
33101115	902214	Other apparatus based on the use of X-rays, for medical, surgical or veterinary uses (2)
33101119	902219	Other apparatus based on the use of X-rays, for other uses (2)
33101210	901811	Electro-cardiographs (2)
33101230	901812	Ultrasonic scanning apparatus (2)
33101230	901813	Magnetic resonance imaging apparatus (2)
33101230	901814	Scintigraphic apparatus (2)
33101230	901819	Other electro-diagnostic apparatus (including apparatus for functional exploratory examination or for checking physiological parameters)
33201130	901410	Direction finding compasses
33201155	901420	Instruments and appliances for aeronautical or space navigation (other than compasses)
33201159	901480	Other navigational instruments and appliances
33201215	901540	Photogrammetrical surveying instruments and appliances
33201219	901540	Photogrammetrical surveying instruments and appliances
33201235	901580	Other surveying instruments and appliances
33201239	901580	Other surveying instruments and appliances
33201253	901580	Other surveying instruments and appliances
33201255	901580	Other surveying instruments and appliances
33201257	901580	Other surveying instruments and appliances
33202050	852691	Radio navigational aid apparatus
33202070	852692	Radio remote control apparatus
33204100	903010	Instruments and apparatus for measuring or detecting ionising radiations
33204200	903020	Cathode-ray oscilloscopes and cathode-ray oscillographs
33204310	903031	Multimeters without a recording device
33204330	903039	Other instruments and apparatus for measuring or checking voltage, current, etc. without a recording device
33204355	903039	Other instruments and apparatus for measuring or checking voltage, current, etc. without a recording device
33204359	903039	Other instruments and apparatus for measuring or checking voltage, current, etc. without a recording device
33204400	903040	Other instruments and apparatus, specially designed for telecommunications (for example, cross-talk meters, gain measuring instruments, distortion factor meters, psophometers)
33204520	903082	Other instruments for measuring or checking semiconductor wafers or devices
33204530	903083	Other instruments for measuring or checking semiconductor wafers or devices with a recording device
33205271	902620	Instruments and apparatus for measuring or checking the pressure of liquids or gases, excluding instruments and apparatus of heading Nos. 9014, 9015, 9028 or 9032
33205274	902620	Instruments and apparatus for measuring or checking the pressure of liquids or gases, excluding instruments and apparatus of heading Nos. 9014, 9015, 9028 or 9033
33205279	902620	Instruments and apparatus for measuring or checking the pressure of liquids or gases, excluding instruments and apparatus of heading Nos. 9014, 9015, 9028 or 9034
33205313	902710	Instruments and apparatus for physical or chemical analysis, gas or smoke analysis apparatus
33205319	902710	Instruments and apparatus for physical or chemical analysis, gas or smoke analysis apparatus
33205320	902710	Instruments and apparatus for physical or chemical analysis, gas or smoke analysis apparatus
33205330	902730	Spectrometers, spectrophotometers and spectrographs using optical radiations (UV, visible, IR)
33205340	902740	Instruments and apparatus for measuring or checking quantities of heat, sound or light, exposure meters
33205350	902750	Other instruments and apparatus using optical radiations (UV, visible, IR)
33205381	902780	Other instruments and apparatus for physical or chemical analysis
33205383	902780	Other instruments and apparatus for physical or chemical analysis
33205385	902780	Other instruments and apparatus for physical or chemical analysis
33205389	902780	Other instruments and apparatus for physical or chemical analysis
33206210	902410	Machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials, metals
33206233	902410	Machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials, metals
33206235	902410	Machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials, metals
33206239	902410	Machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials, metals
33206255	902480	Other machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials
33206259	902480	Other machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials
33206330	902810	Gas meters

Prodcom	HS	Description
33206350	902820	Liquid meters
33206370	902830	Electricity meters
33206430	902910	Revolution counters, production counters, taximeters, mileometers, pedometers and the like
33206453	902920	Speed indicators and tachometers; stroboscopes
33206455	902920	Speed indicators and tachometers; stroboscopes
33206470	902920	Speed indicators and tachometers; stroboscopes
33206510	903110	Measuring or checking instruments, appliances and machines n.e.s, machines for balancing mechanical parts
33206520	903120	Measuring or checking instruments, appliances and machines n.e.s, test benches
33206530	903130	Measuring or checking instruments, appliances and machines n.e.s, profile projectors
33206540	903141	Other optical instruments and appliances, for inspecting semiconductor wafers or devices or for inspecting photomasks or reticles used in manufacturing semiconductor devices
33206550	903180	Other measuring or checking instruments, appliances and machines, n.e.s.
33206570A	903180	Other measuring or checking instruments, appliances and machines, n.e.s.
33206573B	903180	Other measuring or checking instruments, appliances and machines, n.e.s.
33206579B	903180	Other measuring or checking instruments, appliances and machines, n.e.s.
33206583	903180	Other measuring or checking instruments, appliances and machines, n.e.s.
33206589	903180	Other measuring or checking instruments, appliances and machines, n.e.s.
33207015	903210	Thermostats
33207019	903210	Thermostats
33207030	903220	Manostats
33207090	903289	Other automatic regulating or controlling instruments and apparatus, n.e.s.
33208110	901490	Parts and accessories of direction finding compasses, other navigational instruments and appliances
33208141	902490	Parts and accessories for machines and appliances for testing the hardness, strength, compressibility, elasticity or other mechanical properties of materials
33208170	903190	Parts and accessories for measuring or checking instruments, appliances and machines, n.e.s.
33208333	902890	Parts for gas, liquid or electricity supply or production meters, including calibrating meters therefor
33208335	902890	Parts for gas, liquid or electricity supply or production meters, including calibrating meters therefor
33208350	902990	Parts and accessories for revolution counters, production counters, taximeters, mileometers, pedometers and the like; speed indicators and tachometers, other than those of heading No. 90.14 or 90.15; stroboscopes
33208400	903290	Parts and accessories for automatic regulating or controlling instruments and apparatus
33403670	901041	Apparatus for the projection or drawing of circuit patterns on sensitised semiconductor materials - direct principally with machines of heading No. 84.69 write-on-wafer apparatus
33403670	901042	Apparatus for the projection or drawing of circuit patterns on sensitised semiconductor materials - step and repeat aligners
33403670	901049	Apparatus for the projection or drawing of circuit patterns on sensitised semiconductor materials - other (2)
		Telecomm equipment
31301200	854420	Co-axial cable and other co-axial electric conductors
31301500A	854470	Optical fibre cables
31301503B	854470	Optical fibre cables
31301505B	854470	Optical fibre cables
31621153	853110	Burglar or fire alarms and similar apparatus (2)
31621155	853110	Burglar or fire alarms and similar apparatus (2)
31621157	853110	Burglar or fire alarms and similar apparatus (2)
32201150	852510	Transmission apparatus for radio-telephony, radio-telegraphy, radio-broadcasting or television not incorporating reception apparatus
32201170	852520	Transmission apparatus for radio-telephony, radio-telegraphy, radio-broadcasting or television incorporating reception apparatus
32201290	852530	Television cameras
32202020	851711	Line telephone sets with cordless handsets
32202020	851719	Other telephone sets, video phones
32202030	851722	Teleprinters
32202040	851730	Telephonic or telegraphic switching apparatus
32202050	851750	Other apparatus, for carrier-current line systems or for digital line systems
32202060	851750	
32202060	851780	Other electrical apparatus for line telephony or line telegraphy
32202075	851721	Facsimile machines
32203030	851790	Parts for other electrical apparatus for line telephony or line telegraphy
32203060	851790	Parts for other electrical apparatus for line telephony or line telegraphy
32303250	852020	Telephone answering machines
32304450	852790	Reception apparatus for radio-telephony, radio-telegraphy or radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock, n.e.s
32304490	852790	Reception apparatus for radio-telephony, radio-telegraphy or radio-broadcasting, whether or not combined, in the same housing, with sound recording or reproducing apparatus or a clock, n.e.s
32305220	852910	Aerials and aerial reflectors of all kinds; parts suitable for use therewith

Prodcom	HS	Description
32305235	852910	Aerials and aerial reflectors of all kinds; parts suitable for use therewith
32305239	852910	Aerials and aerial reflectors of all kinds; parts suitable for use therewith
32305250	852910	Aerials and aerial reflectors of all kinds; parts suitable for use therewith
32305270	852910	Aerials and aerial reflectors of all kinds; parts suitable for use therewith
33202030	852610	Radar apparatus

Annex 2. Statistical tables

Table 3.1 **Share of households having access to personal computer at home in 2004**

	All households	Household type		Household type					
		With children	No children	1 adult without children	2 adults without children	3 or more adults without children	1 adult with dependent child(ren)	2 adults with dependent child(ren)	3 or more adults with dependent child(ren)
	per cent of households with at least one individual aged 16-74								
Denmark	79	93	71	64	79	n.a.	88	95	n.a.
Estonia	36	52	21	14	30	18	41	57	40
Finland	57	85	48	36	58	73	66	86	95
Germany	69	91	62	54	64	88	85	92	94
Iceland	86	94	74	57	77	85	88	95	96
Latvia	26	38	19	8	16	41	27	39	39
Lituania	27	44	13	7	14	32	35	47	38
Norway	72	86	57	53	76	87	80	96	96
Poland	36	52	22	19	19	35	48	55	45
Russia	11	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweden	84	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Russia: Data for 2003

Table 3.2 **Share of households having access to the Internet at home in 2004**

	All households	Household type		Household type					
		With children	No children	1 adult without children	2 adults without children	3 or more adults without children	1 adult with dependent child(ren)	2 adults with dependent child(ren)	3 or more adults with dependent child(ren)
	per cent of households with at least one individual aged 16-74								
Denmark	69	84	60	53	69	n.a.	69	88	n.a.
Estonia	31	22	9	3	5	1	3	18	1
Finland	51	77	42	33	49	66	50	79	92
Germany	60	83	53	44	54	81	72	83	90
Iceland	81	91	66	45	69	84	81	91	95
Latvia	15	22	10	3	9	24	18	24	21
Lituania	12	18	6	3	7	14	18	18	15
Norway	60	76	44	38	65	80	64	88	94
Poland	26	34	19	16	16	30	28	37	30
Russia	5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sweden	79	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Russia: Data for 2003

Table 3.3 **Frequency of computer usage in 2004 - per cents of individuals aged 16-74**

	Daily users			Uses at least once a week (not daily)			Uses 1-3 times a month			Uses less frequent than once a month		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
	per cent of individuals aged 16-74											
Denmark	63	67	60	13	12	15	4	4	4	1	0.2	1
Estonia	34	36	33	14	12	16	4	4	4	1	1	1
Finland	56	57	55	13	12	13	4	4	4	2	2	3
Germany	46	52	40	17	15	18	5	4	5	2	n.a.	2
Iceland	68	70	66	13	13	13	3	2	3	1	1	1
Latvia	24	24	25	12	13	12	4	4	4	1	1	1
Lituania	21	23	21	13	13	14	2	2	2	0.4	0.3	0.4
Norway	52	56	49	19	20	19	6	4	7	2	2	2
Poland	23	24	22	12	12	12	4	4	4	1	1	2
Russia	13	13	12	6	8	5	2	2	1	5	5	6
Sweden	63	60	65	19	21	17	3	4	3	1	1	1

Russia: Data for 2003

Table 3.4 **Frequency of Internet usage in 2004 - per cents of individuals aged 16-74**

	Daily users			Uses at least once a week (not daily)			Uses 1-3 times a month			Uses less frequent than once a month		
	All	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female
	per cent of individuals eged 16-74											
Denmark	53	60	46	17	14	20	5	4	5	0.4	0.2	1
Estonia	27	28	27	17	18	17	4	3	5	1	2	1
Finland	46	48	44	17	16	19	5	5	5	2	2	2
Germany	30	37	23	19	18	21	8	8	9	3	2	4
Iceland	61	63	59	16	16	16	4	3	4	2	2	1
Latvia	16	17	16	11	11	11	5	5	5	1	1	1
Lituania	13	14	12	13	13	13	3	3	3	1	1	1
Norway	43	50	37	25	23	26	5	4	6	2	2	2
Poland	12	13	10	11	10	11	5	5	5	1	1	1
Russia	3	4	2	4	5	3	2	3	2	3	3	4
Sweden	52	46	57	24	27	21	5	6	4	1	1	1

Russia: Data for 2003

Table 3.5.1 **Purpose of Internet use in 2004. Per cents of individuals aged 16-74**

	Communi-cation	Info search/on-line services					
		Finding information about goods and services	Using services related to travel and commodation	Listening to web radio/-watching web television	Playing/-downloading games, images or music	Reading/-downloading online newspapers/ news magazines	Looking for ajob/-sending a job application
	per cent of individuals aged 16-74						
Denmark	65	59	32	16	19	36	16
Estonia	39	32	n.a.	13	20	38	12
Finland	63	59	42	12	38	37	22
Germany	52	52	32	8	15	15	14
Iceland	75	72	51	21	34	61	16
Latvia	41	19	9	9	16	19	9
Lituania	25	15	5	8	15	21	4
Norway	66	62	40	28	23	56	22
Poland	24	15	8	6	14	14	5
Sweden	65	59	29	13	23	28	16
Baltic Region	47	43	25	9	16	19	12
EU25	41	37	23	n.a.	17	18	n.a.

Table 3.5.2 **Purpose of Internet use in 2004. Per cents of individuals aged 16-74**

Ordering/selling of goods and services

	Internet banking	Other financial services	Selling goods and services
	per cent of individuals aged 16-74		
Denmark	45	4	5
Estonia	35	n.a.	3
Finland	50	12	8
Germany	26	4	14
Iceland	54	5	6
Latvia	12	1	1
Lituania	7	1	0.3
Norway	55	5	5
Poland	4	0.4	1
Sweden	40	7	6
Baltic Region	24	3	9
EU25	18	n.a.	6

Table 3.5.3 **Purpose of Internet use in 2004. Per cents of individuals aged 16-74**

Online purchasing within last 12 months

	Food/ groceries	Films, music	Books, magazines etc.	Clothes, sports goods	Computer software, incl. Games	Computer hardware	Electronic equipment	Share purchases/financial services/ insurance	Travel and holiday accomodation	Tickets for events	Lotteries or betting
	per cent of individuals aged 16-74										
Denmark	3	9	10	12	6	8	6	2	14	16	2
Finland	1	5	5	8	3	4	3	2	7	6	7
Germany	2	8	16	13	6	5	7	2	6	5	2
Iceland	1	9	14	7	7	3	3	3	24	5	4
Latvia	0.2	0,4	0.5	0.3	0.4	0.3	1	0.1	0.3	0.2	0
Lituania	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0	0.1	0	n.a.
Norway	1	11	14	10	8	6	8	4	25	17	2
Poland	0.1	1	2	1	1	1	1	0.3	0.3	0.3	0
Baltic Region	1	6	11	9	4	4	5	1	5	4	1
EU25	2	7	8	7	3	3	n.a.	n.a.	6	5	1

Table 3.5.4 **Purpose of Internet use in 2004. Per cents of individuals aged 16-74**

Interaction with public authorities

	Obtaining information from public authorities websites	Downloading official forms	Sending filled in forms
	per cent of individuals aged 16-74		
Denmark	42	16	14
Estonia	14	14	13
Finland	43	13	10
Germany	31	14	7
Iceland	56	30	19
Latvia	12	4	4
Lituania	9	6	5
Norway	48	23	11
Poland	12	6	4
Sweden	36	20	11
Baltic Reion	27	12	7
EU25	21	10	6

Table 4.1 **ICT usage by enterprises. Information and Communication Technology 2004**

	Enterprises using PC	Intranet	LAN, total	Wireless LAN	Extranet	Extranet/ Intranet	Access to the Internet	Access to broadband
	per cent							
Denmark	98	33	67	12	16	16	97	80
Estonia	93	28	50	8	7	7	90	70
Finland	98	36	80	13	18	18	97	71
Germany	96	39	74	15	14	15	92	53
Iceland	99	36	50	11	29	29	97	89
Latvia	87	24	46	6	7	7	75	27
Lithuania	91	41	47	5	5	5	81	50
Norway	97	33	69	15	13	13	86	65
Poland	92	26	46	4	3	3	85	28
Sweden	97	42	75	17	15	15	96	75
Russia	85	n.a.	46	n.a.	7	n.a.	43	14
Baltic Region	94	37	65	13	12	13	83	46
EU25	95	33	58	9	12	12	89	52

Iceland and Russia: Data for 2003.

Table 4.2 **ICT usage by enterprises. Type of broadband connection 2004**

	DSL (xDSL, ADSL, SDSL etc.) < 2Mb/sec	DSL (xDSL, ADSL, SDSL etc.) >= 2Mb/sec	Other broadband connection (e.g. cable etc.)	Own homepage
	per cent			
Denmark	22	33	16	81
Estonia	36	23	11	52
Finland	40	25	17	75
Germany	30	16	13	73
Iceland	64	20	5	68
Latvia	16	9	17	33
Lithuania	31	12	9	39
Norway	24	20	27	64
Poland	21	6	3	44
Sweden	36	26	23	82
Russia	n.a.	n.a.	n.a.	14
Baltic Region	29	16	12	29
EU25	n.a.	n.a.	n.a.	58

Iceland and Russia: Data for 2003.

Table 4.3 **ICT usage by enterprises. Facilities of enterprise's website 2004**

	Marketing the enterprise's products	Facilitating access to product catalogues and price lists	Customised page for repeat clients	Delivering digital products	Providing after sales support	Providing mobile internet services	Employing persons, who are teleworking	Number of enterprises (grossed up) in enterprise survey
	per cent							
Denmark	75	26	10	8	19	n.a.	45	15 833
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18	6 182
Finland	66	28	5	9	16	2	31	13 234
Germany	64	31	12	6	37	4	21	422 029
Iceland	63	37	13	13	24	1	35	1 087
Latvia	31	15	7	2	2	1	7	9 066
Lithuania	28	16	14	4	2	3	10	8 710
Norway	63	22	8	7	14	13	42	18 006
Poland	33	22	6	2	2	1	4	70 438
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	39	26 670
Russia	18	18	n.a.	2	2	n.a.	n.a.	121 393
Baltic Region	52	23	11	5	25	3	21	n.a.
EU25	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	16	n.a.

Iceland and Russia: Data for 2003.

Table 4.4 **ICT usage by enterprises. Purpose of internet use (as consumer) 2004**

	Banking and financial services	Training and education	Market monitoring (e.g. prices)	Receiving digital products	Obtaining after-sales services
	per cent				
Denmark	85	9	36	34	n.a.
Estonia	86	25	n.a.	n.a.	n.a.
Finland	84	32	n.a.	n.a.	n.a.
Germany	63	21	59	49	48
Iceland	92	18	58	54	51
Latvia	67	32	47	16	10
Lithuania	70	48	42	19	7
Norway	71	17	37	38	42
Poland	55	36	44	37	11
Sweden	81	19	n.a.	63	n.a.
Russia	n.a.	10	25	11	n.a.
Baltic Region	65	21	50	40	42
EU25	n.a.	20	n.a.	n.a.	n.a.

Iceland and Russia: Data for 2003.

Table 4.5 **ICT usage by enterprises. Interaction with public authorities 2004**

	Obtaining information	Obtaining forms, e.g. tax forms	Returning filled in forms	Full electronic case handling	Interacting with public authorities
	per cent				
Denmark	75	62	54	35	85
Estonia	78	73	54	58	84
Finland	88	84	61	25	91
Germany	37	32	19	6	36
Iceland	85	73	63	45	97
Latvia	38	33	13	3	40
Lithuania	63	60	30	5	65
Norway	59	57	43	19	69
Poland	57	47	68	31	74
Sweden	90	87	53	17	92
Baltic Region	45	40	29	11	48
EU25	45	41	29	16	52

Iceland and Russia: Data for 2003.

Table 4.6 **ICT usage by enterprises e-Commerce. Purchases and sales 2004**

	Enterprises having ordered products/services via the internet - per cent of enterprises (during year before ref.year)	Enterprises having received ordes via internet - per cent of enterprises	Revenues from orders received via internet - Mill euro, excl. VAT)	Sales via EDI etc. - Mill euro	Total turnover - Mill euro	Percentage of enterprises total turnover from e-Commerce
Denmark	58	27	8 300	15 500	194 700	12.2
Estonia	31	9	n.a.	301	16 823	2.8
Finland	71	19	10 369	17 573	219 933	12.7
Germany	48	16	134 476	263 458	3 160 256	11.3
Iceland	12	6	n.a.	n.a.	n.a.	5.9
Latvia	7	1	103	30	30 672	0.3
Lithuania	13	5	333	79	22 722	1.8
Norway	51	22	4 815	9 371	188 921	7.5
Poland	10	4	3 332	4 545	280 320	2.8
Sweden	68	19	12 340	31 850	396 205	11.2
Russia	12g)	11g)	n.a.	n.a.	n.a.	n.a.
Baltic Region	39	14	174 158	342 705	4 479 956	11.5
EU25	27	13	n.a.	n.a.	n.a.	8.4

Iceland and Russia: Data for 2003.

Table 4.7 **ICT usage by enterprises e-Commerce. Enterprises using EDI or networks other than Internet 2004**

	Enterprises using EDI or networks other than Internet for e-commerce	Enterprises using EDI or other networks for min. 1% of total orders	Enterprises using EDI or other networks for min.1% of total sales
	per cent		
Denmark	11	6	7
Estonia	5	2	3
Finland	n.a.	4	7
Germany	6	3	3
Iceland	4	4	6
Latvia	0	0	0
Lithuania	1	1	0
Norway	6	6	4
Poland	3	1	1
Sweden	8	4	6
Baltic Region	5	3	3

Iceland: Data for 2003.

Table 4.8 **ICT usage by enterprises. Security facilities 2004**

	Virus checking	Firewalls	Secure servers	Off-site data back-up	Electronic digital signature as customers authentication	Other authentication mechanism, e.g. PIN	Data encryption for confidentiality	Enterprises using any of the above mentioned security facilities	Has updated security facilities in last 3 months	Has encountered ICT-related security problems in the last 3 months
	per cent									
Denmark	88	71	32	75	n.a.	10	11	94	88	55
Estonia	78	46	15	n.a.	5	53	10	84	51	37
Finland	92	83	41	48	2	19	14	94	89	55
Germany	87	66	45	78	14	44	37	91	80	24
Iceland	n.a.	56	48	80	6	27	10	92	79	30
Latvia	67	30	14	14	7	9	7	72	53	18
Lithuania	70	20	23	31	16	15	9	76	45	34
Norway	87	68	34	63	6	9	6	90	83	27
Poland	71	28	9	22	19	47	18	79	49	23
Sweden	93	83	49	60	15	34	22	94	89	37
Baltic Region	84	62	39	67	14	40	31	89	76	26
EU25								87	73	27

Iceland: Data for 2003.

Table 4.9 ICT usage by enterprises. Problems encountered 2004

	Computer virus attack	Unauthorised access to enterprise computer systems or data	Blackmail or threats to the enterprise data or software
	per cent		
Denmark	32	4	1
Estonia	36	2	1
Finland	51	4	0
Germany	23	2	1
Iceland	26	8	1
Latvia	17	2	0
Lithuania	33	2	1
Norway	27	3	0
Poland	22	1	0
Sweden	30	3	0
Baltic Region	24	2	1
EU25	26	2	1

Table 6.1 **e-Security problems, their impact on e-commerce and security precautions in 2004 - per cents of individuals aged 16-74**

Security precautions

		Installed a virus checking program	Updated a virus checking program	Used online authen-tication on the Internet	Installed or upgraded a firewall
		per cent of individuals aged 16-74			
Denmark	All	18	46	49	19
	Male	21	53	53	25
	Female	15	39	44	14
	Primary education	16	36	36	15
	Secondary education	17	46	48	19
	Tertiary education	22	59	66	25
Estonia	All	1	0.3	0.3	0
	Male	0.3	0	0	0
	Female	1	0.5	0.5	0.1
	Primary education	0.5	0	0	0
	Secondary education	0	0	0	0
	Tertiary education	2	1.0	1	0.2
Finland	All	19	33	47	11
	Male	25	40	49	16
	Female	12	27	44	6
	Primary education	15	23	29	8
	Secondary education	18	33	48	12
	Tertiary education	23	48	67	11
Germany	All	24	28	18	15
	Male	31	36	22	21
	Female	16	21	13	9
	Primary education	18	19	12	11
	Secondary education	24	29	18	16
	Tertiary education	32	41	26	21
Iceland	All	41	51	53	22
	Male	45	57	54	28
	Female	37	44	52	15
	Primary education	34	41	42	16
	Secondary education	41	51	54	21
	Tertiary education	56	69	71	33

Table 6.1 (continud) **e-Security problems, their impact on e-commerce and security precautions in 2004 - per cents of individuals aged 16-74**

Security precautions

		Installed a virus checking program	Updated a virus checking program	Used online authen-tication on the Internet	Installed or upgraded a firewall
		per cent of individuals aged 16-74			
Latvia	All	10	10	8	2
	Male	12	12	8	3
	Female	8	9	7	1
	Primary education	5	4	3	1
	Secondary education	8	8	6	2
	Tertiary education	24	26	18	5
Lithuania	All	5	5	6	1
	Male	7	7	7	2
	Female	4	4	5	1
	Primary education	4	3	3	1
	Secondary education	4	4	3	0.4
	Tertiary education	8	9	10	2
Norway	All	38	56	71	n.a.
	Male	38	62	75	n.a.
	Female	37	50	67	n.a.
	Primary education	30	50	63	n.a.
	Secondary education	37	56	68	n.a.
	Tertiary education	41	61	77	n.a.
Poland	All	14	10	7	4
	Male	16	12	8	5
	Female	12	9	7	3
	Primary education	11	8	6	4
	Secondary education	11	7	5	3
	Tertiary education	40	30	23	12
Sweden	All	21	39	42	17
	Male	19	34	38	13
	Female	23	45	45	20
	Primary education	17	29	30	11
	Secondary education	20	37	38	15
	Tertiary education	25	50	55	22
Baltic Region	All	20	25	20	12

Table 6.2 **e-Security problems, their impact on e-commerce and security precautions in 2004 - per cents of individuals aged 16-74**

Security problems encountered

		Computer virus resulting in loss of information or time	Fraudulent payment on the internet	Abuse of personal information sent on the internet	Spam' - unsolicited e-mails sent to you
		per cent of individuals aged 16-74			
Denmark	All	24	1	1	44
	Male	25	1	1	50
	Female	23	1	1	38
	Primary education	22	1	1	34
	Secondary education	24	1	1	45
	Tertiary education	28	1	1	55
Estonia	All	10	0.1	n.a.	29
	Male	11	0.1	n.a.	29
	Female	10	0	n.a.	29
	Primary education	9	0.3	n.a.	24
	Secondary education	7	0	n.a.	24
	Tertiary education	19	0	n.a.	44
Finland	All	19	0	3	34
	Male	22	0.1	3	37
	Female	17	0	3	31
	Primary education	14	0	1	24
	Secondary education	18	0	3	33
	Tertiary education	28	0.1	6	49
Germany	All	23	n.a.	2	38
	Male	27	n.a.	2	43
	Female	18	n.a.	n.a.	33
	Primary education	18	n.a.	n.a.	28
	Secondary education	21	n.a.	2	37
	Tertiary education	33	n.a.	n.a.	53
Iceland	All	22	2	3	68
	Male	24	3	4	70
	Female	21	2	1	65
	Primary education	20	1	2	59
	Secondary education	23	2	2	69
	Tertiary education	28	5	5	84

Table 6.2 (continud) **e-Security problems, their impact on e-commerce and security precautions in 2004 - per cents of individuals aged 16-74**

Security problems encountered

		Computer virus resulting in loss of information or time	Fraudulent payment on the internet	Abuse of personal information sent on the internet	Spam' - unsolicited e-mails sent to you
		per cent of individuals aged 16-74			
Latvia	All	11	0.2	0.5	14
	Male	12	0.1	1	14
	Female	10	0.2	0.4	13
	Primary education	5	0.0	0.2	5
	Secondary education	9	0.2	0.4	11
	Tertiary education	25	0.3	1	33
Lithuania	All	12	0.1	0.2	11
	Male	14	0.1	0.4	12
	Female	11	0.1	0.1	9
	Primary education	8	0	0.2	7
	Secondary education	9	0	0.3	8
	Tertiary education	18	0.2	0.2	16
Norway	All	33	2	3	71
	Male	35	2	3	73
	Female	30	1	2	69
	Primary education	23	3	5	66
	Secondary education	31	1	2	70
	Tertiary education	38	2	3	73
Poland	All	10	0.1	1	11
	Male	11	0.1	1	13
	Female	9	0.1	0.4	10
	Primary education	7	0.2	0.4	8
	Secondary education	8	0.1	0.4	8
	Tertiary education	26	0.1	3	34
Sweden	All	21	1	6	33
	Male	17	1	5	28
	Female	24	1	8	38
	Primary education	17	1	7	24
	Secondary education	18	1	4	31
	Tertiary education	27	1	8	43
Baltic Region	All	19	0.4	2	31
EU25	All	17	0.5	3	26

Table 6.3 **e-Security problems, their impact on e-commerce and security precautions in 2004 - per cents of individuals aged 16-74**

Reasons for not buying/selling for own private use

		Security concerns, worried about giving credit card details over the internet	Privacy concerns, worried about giving personal details over the internet
		per cent of individuals aged 16-74	
Denmark	All	11	1
	Male	12	1
	Female	10	1
	Primary education	12	1
	Secondary education	12	1
	Tertiary education	11	1
Germany	All	9	8
	Male	9	7
	Female	9	8
	Primary education	7	6
	Secondary education	9	8
	Tertiary education	11	8
Latvia	All	0	0.1
	Male	0.1	0.1
	Female	0	0
	Primary education	0	0
	Secondary education	0	0
	Tertiary education	0.1	0.3
Lithuania	All	2	n.a.
	Male	2	n.a.
	Female	2	n.a.
	Primary education	1	n.a.
	Secondary education	1	n.a.
	Tertiary education	3	n.a.
Norway	All	17	9
	Male	16	5
	Female	18	13
	Primary education	16	4
	Secondary education	18	11
	Tertiary education	16	8
Poland	All	9	10
	Male	8	9
	Female	9	10
	Primary education	6	6
	Secondary education	7	8
	Tertiary education	23	23
Baltic Region	All	9	8

Table.7.1 **e-Skills, their development by training courses and e-learning activities in 2004 - per cents of individuals aged 16-74.**

Performance of computer related activities

		Using a mouse to launch programs	Copying or moving a file or a folder	Using copy or cut/paste tools	Sending e-mail with attached files	Using basic arithmetic formulas to add, subtract etc.	Creating a web page or electronic presentation	Programming by means of specialised language
		per cent of individuals aged 16-74						
Denmark	All	83	69	66	63	54	15	13
	Male	85	73	68	66	60	19	19
	Female	81	65	64	61	47	12	8
	Primary education	73	58	55	50	45	14	11
	Secondary education	84	69	65	63	54	15	12
	Tertiary education	95	84	82	82	64	17	19
Estonia	All	n.a.	35	n.a.	n.a.	n.a.	11	8
	Male	n.a.	37	n.a.	n.a.	n.a.	10	11
	Female	n.a.	34	n.a.	n.a.	n.a.	12	5
	Primary education	n.a.	28	n.a.	n.a.	n.a.	10	7
	Secondary education	n.a.	31	n.a.	n.a.	n.a.	9	6
	Tertiary education	n.a.	50	n.a.	n.a.	n.a.	15	13
Finland	All	77	63	59	n.a.	43	38	16
	Male	77	63	58	n.a.	46	41	21
	Female	77	62	60	n.a.	40	35	12
	Primary education	60	46	43	n.a.	29	29	13
	Secondary education	81	62	57	n.a.	40	35	17
	Tertiary education	93	85	82	n.a.	65	53	20
Germany	All	73	59	57	47	40	17	10
	Male	76	64	60	52	45	23	14
	Female	69	55	53	43	35	12	5
	Primary education	63	47	44	36	29	14	7
	Secondary education	73	60	57	47	40	16	8
	Tertiary education	86	76	74	64	57	26	17
Iceland	All	83	66	67	68	51	31	5
	Male	85	69	68	69	56	33	9
	Female	82	64	66	67	46	29	2
	Primary education	76	53	54	54	39	22	3
	Secondary education	85	67	66	69	50	26	4
	Tertiary education	96	91	92	93	76	53	11

Table 7.1 (continud) **e-Skills, their development by training courses and e-learning activities in 2004 - per cents of individuals aged 16-74.**

Performance of computer related activities

		Using a mouse to launch programs	Copying or moving a file or a folder	Using copy or cut/paste tools	Sending e-mail with attached files	Using basic arithmetic formulas to add, subtract etc.	Creating a web page or electronic presentation	Programming by means of specialised language
		per cent of individuals aged 16-74						
Latvia	All	46	32	30	24	16	5	1
	Male	47	32	29	25	17	5	2
	Female	46	32	30	24	15	4	1
	Primary education	28	18	17	11	8	2	1
	Secondary education	44	29	26	21	13	4	1
	Tertiary education	76	63	59	53	36	11	3
Lithuania	All	39	34	33	26	25	6	3
	Male	39	34	32	26	25	7	4
	Female	38	34	33	26	25	4	2
	Primary education	33	30	29	21	21	5	3
	Secondary education	29	25	24	19	18	5	3
	Tertiary education	51	45	44	36	35	7	4
Norway	All	n.a.	58	71	77	47	29	7
	Male	n.a.	65	72	80	55	36	11
	Female	n.a.	51	71	73	38	22	3
	Primary education	n.a.	48	53	57	38	31	4
	Secondary education	n.a.	53	66	74	39	20	6
	Tertiary education	n.a.	70	85	87	59	44	10
Poland	All	43	34	32	21	14	7	3
	Male	44	37	33	23	15	8	4
	Female	42	32	31	20	13	5	2
	Primary education	36	31	29	18	12	10	3
	Secondary education	39	29	26	16	10	4	2
	Tertiary education	82	73	69	57	36	15	6
Baltic Region	All	64	52	50	41	33	15	8

Table 7.2 **e-Skills, their development by training courses and e-learning activities in 2004 - per cents of individuals aged 16-74.**

		Taking training courses			Use of internet for training and education		
		Training courrses whenever	In the last 12 months	More than one year ago	Formalised educational activities	Post educational courses	Other educational activities
		per cent of individuals aged 16-74					
Denmark	All	60	15	45	14	5	4
	Male	58	13	44	13	5	4
	Female	61	16	46	16	5	3
	Primary education	51	15	37	17	2	3
	Secondary education	58	12	46	12	5	4
	Tertiary education	72	18	54	12	9	4
Finland	All	n.a.	n.a.	n.a.	20	6	3
	Male	n.a.	n.a.	n.a.	18	4	3
	Female	n.a.	n.a.	n.a.	23	7	3
	Primary education	n.a.	n.a.	n.a.	24	2	1
	Secondary education	n.a.	n.a.	n.a.	19	6	4
	Tertiary education	n.a.	n.a.	n.a.	17	9	3
Germany	All	41	9	32	12	21	13
	Male	40	9	31	13	24	16
	Female	42	8	34	12	18	11
	Primary education	28	8	21	17	16	7
	Secondary education	41	9	32	11	20	12
	Tertiary education	59	10	49	9	33	25
Iceland	All	49	12	37	6	2	5
	Male	46	11	34	5	2	6
	Female	52	13	39	8	2	5
	Primary education	34	8	26	10	3	11
	Secondary education	52	11	41	5	1	2
	Tertiary education	71	23	48	4	1	1

Table 7.2 (continud) **e-Skills, their development by training courses and e-learning activities in 2004 - per cents of individuals aged 16-74.**

		Taking training courses			Use of internet for training and education		
		Training courrses whenever	In the last 12 months	Training courrses whenever	In the last 12 months	Training courrses whenever	In the last 12 months
		per cent of individuals aged 16-74					
Latvia	All	25	8	18	9	2	4
	Male	23	7	15	8	2	3
	Female	28	8	20	9	2	4
	Primary education	20	11	8	8	1	2
	Secondary education	21	6	15	7	1	3
	Tertiary education	48	8	40	14	6	9
Lithuania	All	26	12	14	20	n.a.	n.a.
	Male	24	11	13	18	n.a.	n.a.
	Female	28	13	15	21	n.a.	n.a.
	Primary education	30	24	6	23	n.a.	n.a.
	Secondary education	19	7	11	15	n.a.	n.a.
	Tertiary education	30	7	23	21	n.a.	n.a.
Norway	All	60	12	48	4	2	3
	Male	60	11	49	3	2	3
	Female	61	14	47	5	2	3
	Primary education	32	10	22	8	2	6
	Secondary education	58	10	48	3	1	2
	Tertiary education	75	16	59	4	3	4
Poland	All	21	9	12	4	1	1
	Male	19	9	10	4	1	1
	Female	23	9	14	3	1	1
	Primary education	23	18	5	7	1	0
	Secondary education	16	5	11	2	0.5	1
	Tertiary education	47	9	39	4	2	3
Sweden	All	n.a.	n.a.	n.a.	4	2	2
	Male	n.a.	n.a.	n.a.	5	1	2
	Female	n.a.	n.a.	n.a.	4	2	2
	Primary education	n.a.	n.a.	n.a.	4	2	1
	Secondary education	n.a.	n.a.	n.a.	2	1	1
	Tertiary education	n.a.	n.a.	n.a.	8	2	3
Baltic Region	All	36	9	27	10	13	8
EU25	All	n.a.	n.a.	n.a.	10	n.a.	9

Table 8.1 **The ICT sector. Number of employees. 2003**

	Total ICT manu-facturing	Total ICT services	Total ICT wholesale	Total Telecommu-nications	Total ICT Consultancy services	Total ICT	Total private sector
	number of employees						
Baltic Region	569 783	1 109 089	302 253	319 390	494 467	1 678 872	2 793 1458
Denmark	16 521	76 535	21 679	20 834	34 022	93 056	1 294 046
Estonia	6 970	10 957	4 443	2 789	3 725	17 927	364 585
Finland	45 428	65 953	9 263	20 242	36 448	111 381	1 178 834
Germany	37 1723	637 429	206 648	171 121	259 660	1 009 152	17 515 435
Iceland	104	5 303	1 094	1 563	2 646	5 407	93 899
Latvia	2 153	11 007		6 172	4 835	13 160	4 630 89
Lithuania	11 282	21 779	9 913	6 624	5 242	33 061	724 551
Norway	11 674	60 220	11 220	13 176	35 824	71 894	1 305 002
Poland	58 469	111 994	16 994	58 693	36 307	170 463	3 751 402
Sweden	47 716	124 222	22 093	25 911	83 239	171 938	2 059 065

Finland and Poland: Provisional figures 2004.
Germany: Data for 2000.
Iceland: Data for 2001.
Latvia: Data for 2002.

Table 8.2 **The ICT sector. Number of enterprises. 2003**

	ICT manu-facturing	ICT whole-sale	Tele-commu-nications	ICT Consul-tancy	Total ICT	Total manu-facturing	Total services	Total private sector
	number of enterprises							
Denmark	597	1 639	244	6 445	8 925	18 730	146 326	195 425
Estonia	179	711	85	739	1 714	4 752	26 038	34 013
Finland	662	881	269	4 192	6 004	25 890	140 904	213 686
Germany	6 530	5 388	858	42 564	55 340	n.a.	n.a.	n.a.
Latvia	1 690	4 250	5 576	3 003	14 519	148 367	244 416	434 231
Lithuania	195	772	224	996	2 187	9 030	43 104	56 299
Norway	201	2 182	480	8 852	11 715	9 460	176 083	2 306 59,8
Poland	10 434	5 938	3 239	40 308	59 919	331 012	1 976 527	2 697 836
Sweden	1 772	3 763	543	27 825	33 903	57 494	404 655	546 458

Finland and Poland: Provisional figures 2004.
Germany: Data for ICT manufacturing + wholesale: 2000

Table 8.3 **Turnover in mill. euros. 2003**

	ICT manu facturing	ICT whole-sale	Tele-commu-nications	ICT consul-tancy	ICT services total	Total manu-facturing	Total services	Total private sector
	mill. euros							
Denmark	3 207	10 280	6 112	6 089	25 688	75 254	205 831	301 658
Estonia	247	707	484	140	1 578	4 792	14 059	20 668
Finland	28 351	5 410	6 533	4 417	44 712	112 631	157 244	289 239
Germany	n.a.	n.a	65 799	57 193	122 992	n.a.	n.a	n.a
Latvia	64	1 162	570	120	1 917	4 069	14 510	20 116
Lithuania	369	1 179	727	182	2 457	7 650	16 569	26 101
Norway	2 706	4 861	6 945	5 367	19 879	61 408	199 641	282 770
Poland	5 044	3 538	n.a.	3 282	n.a.	122 727	223 535	n.a.
Sweden	13 057	011 470	9.500	13.794	47 821	161 663	309 463	502 460

Denmark and Finland: 2004

Table 8.4 **Value added in mill. euros 2003**

	ICT manu-facturing	ICT whole-sale	Tele-commu-nications	ICT Consul-tancy	Total ICT	Total manu-facturing	Total services	Total private sector
	mill. euros							
Denmark	1 164	1 714	2 527	2 911	8 316	25 446	49 517	82 575
Estonia	66	46	234	56	401	1 280	2 476	4 122
Finland	5 813	736	2 112	1 .727	10 388	29 730	36 622	72 883
Germany	n.a.	n.a.	31 478	31 838	63 316	n.a.	n.a.	n.a.
Iceland	4	75	28	113	220	n.a.	n.a.	n.a.
Latvia	21	129	341	63	555	1 260	3 511	5 173
Lithuania	111	144	315	58	628	1 889	3 147	5 607
Norway	924	761	2 675	2 549	6 908	18 926	54 724	81 458
Poland	1 273	462		1 141	n.a.	36 562	37 501	n.a.
Sweden	1 832	1 396	3 433	5 876	12 536	46 205	80 857	138 482

Estonia: ICT consultancy includes only NACE 72.
Finland:.Provisional figures 2004.
Poland: Data for Telecommunications are confidential.

Table 8.5 **Production of ICT goods. 2004**

	Audio- and video equipment	Computer and related equipment	Electronic components	Telecom-munication equipment	Other ICT goods	ICT products total	Other products	Pro-duction total
	mill. euros							
Denmark	446	171	448	377	904	2 345	63 871	66 217
Estonia	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Finland	76	71	1 240	12 741	622	14 750	68 244	82 994
Germany	3 738	7 886	12 694	13 577	13 280	51 175		51 175
Latvia	3	7	3	25	16	53	4 959	5 012
Lithuania	109	27	192	16	33	377	9 905	10 282
Norway	15	51	96	740	579	1 481	46 963	48 444
Sweden	60	359	2 206	7 741	1 138	11 504	140 374	151 878

Latvia and Norway: Data for 2003.
Lithuania: Preliminary data for 2004.

Table 8,6 Production of ICT goods 2000-2004

	2000	2001	2002	2003	2004
	mill. euros				
Denmark	2 665	2 740	2 903	2 736	2 345
Finland	17 294	16 366	16 118	14 237	14 750
Germany	60 599	57 654	48 739	48 251	51 175
Latvia	36	28	30	53	n.a.
Lithuania	n.a.	n.a.	266	314	377
Norway	1 650	1 764	2 032	1 481	n.a.
Sweden	20 600	15 849	12 979	10 492	11 504

Lithuania: Preliminary data for 2004.

Table 8.7 Export of ICT goods by types of goods. Mill. euros 2004

	Audio- and video equipment	Computer and related equipment	Electronic components	Telecom-munication equipment	Other ICT goods	ICT foreign trade	Total foreign trade
	mill. euros						
Baltic Region	8 567	22 574	23 525	31 110	18 831	104 606	1 080 112
Denmark	847	1 080	530	1 360	922	4 739	60 808
Estonia	11	9	483	340	30	874	4 731
Finland	256	328	1 505	6 367	808	9 264	48 790
Germany	5 483	19 703	17 163	15 409	15 515	73 273	731 092
Latvia	6	10	7	36	13	73	3 185
Lithuania	113	55	209	13	32	421	7 478
Norway	76	187	180	523	370	1 335	66 101
Poland	1 081	162	968	198	308	2 717	60 014
Sweden	694	1 040	2 480	6 864	833	11 911	97 914

Table 8.8 Import of ICT goods by types of goods. Mill. euros. 2004

	Audio- and video equipment	Computer and related equipment	Electronic components	Telecom-munication equipment	Other ICT goods	ICT foreign trade	Total foreign trade
	mill. euros						
Baltic Region	14 295	36 325	26 272	19 560	10 061	106 513	880 611
Denmark	965	2 486	638	1 811	428	6 328	53 781
Estonia	85	105	529	148	52	919	6 727
Finland	533	1 285	2 262	1 008	380	5 468	40 270
Germany	9 253	25 823	18 180	11 631	7 053	71 940	574 388
Latvia	76	114	27	115	39	371	5 639
Lithuania	133	197	126	150	75	682	9 958
Norway	834	1 668	385	935	373	4 196	38 948
Poland	778	1 610	1 921	1 239	647	6 194	71 812
Sweden	1 637	3 038	2 204	2 523	1 015	10 416	79 088

Table 8.9 **Expenditure in Research and Development (R&D) 2003. Mill. euros**

	Total all sectors	ICT Sector total	ICT manu-facturing	ICT services	ICT wholesale	Tele-commu-nications	ICT consultancy services	Other sectors
	mill. euros							
Denmark	3 444	816	303	513	24	83	406	2 628
Estonia	9.6	2.2	0.7	1.5	0.1	0.5	0.9	7 4
Finland	3 528	2 093	1 795	298	n.a.	63	235	1 435
Latvia	12	n.a.	n.a.	n.a.	n.a.	n.a.	0	12
Lithuania	23	3	2	2	0	0	1	20
Norway	1 685	541	206	336	10	62	264	1 143
Poland	1 037	34	17	17	n.a.	n.a.	n.a.	1 003
Sweden	7 886	2 211	n.a.	n.a.	n.a.	n.a.	n.a.	5 675

Estonia: ICT consultancy includes only NACE 7. Total for all sectors are exclusive of NACE 65-67.
Finland: ICT consultancy excluding NACE 7133. ICT wholesale is not separate, but included in other sectors.
Germany and Iceland: No data available.
Norway and Sweden: Data for 2004.