The ICT Sector in the Nordic countries 1995-2000

Statistics Denmark
Statistics Finland Statistics Norway
Statistics Iceland Statistics Sweden

The ICT Sector in the Nordic countries 1995-2000

ISBN 87-501-1232-5 (printed)
ISBN 87-501-1233-3 (internet)

Cirkulation 700

Printed by
Statistics Denmark
December 2001

The publication is available on:
www.dst.dk/ict

Preface

There is a growing demand for official and internationally harmonised statistics on the Information Society and its growing influence on different aspects of our society. As a consequence of these needs, the director generals of the five Nordic statistical institutes decided in November 1999 to set down a Nordic group for development of statistics on the Information Society. Amongst the responsibilities of this group was the preparation and publishing of statistical publications comprising different aspects of the Information Society based on harmonised definitions and concepts.

This publication "*The ICT Sector in the Nordic Countries 1995-2000*" is an outcome of the work of the Nordic working group on Information Society Statistics. The publication is an update of the first version published December 2000. The work has been coordinated by Statistics Denmark and the publication has been elaborated by Helle Månsson, Statistics Denmark (chapters 1-3 and 5), and Lea Parjo, Statistics Finland (chapter 4).

The contact persons in the Nordical statistical network concerning statistics on the Information Society are:

Peter Bøegh Nielsen (chairman)
Statistics Denmark
Sejrøgade 11, DK- 2100 København Ø
Danmark
email: pbn@dst.dk, telephone: +45 3917 3111

Lea Parjo
Statistics Finland
FIN-00022 Statistics Finland
Finland
email: lea.parjo@stat.fi, telephone: +358 9 1734 3521

Magnús Kári Bergmann
Statistics Iceland
Skuggasund 3, 150 Reykjavik
Island
email: magnus.bergmann@statice.is, telephone: +354 545 8861

Jan-Erik Lystad
Statistics Norway
Oterveien 23, N-2225 Kongsvinger
Norge
email: jan-erik.lystad@ssb.no, telephone: +47 62 885000

Anders Sundström
Statistics Sweden
Karlavägen 100, Boks 24 300, 104 51 Stockholm
Sverige
email: anders.sundstrom@scb.se, telepone: +46 8 506 949 37

Contents

Summary

The Information and Communication Technology (ICT) sector is of major economic importance in all the Nordic countries, employing nearly 498 000 employees in 1999 - or 8.6% of the employment in the private sector in the five Nordic countries. The ICT sector is largest in Sweden accounting for 10.3% of total employment in the private sector in 1999, followed by Finland (8.8%), Denmark (8.7%), Norway (6.4%) and Iceland (5.6%).

The ICT sector in the Nordic countries can also be characterised as a relatively fast growing sector as its share of the total employment in the private sector has risen from 7.1% in 1994 to 8.6% in 1999, and this in a period with a general growth in employment in the Nordic countries and thus experiencing a larger growth than the private sector in general.

The ICT sector is can be divided into the ICT manufacturing activities and the ICT services activities. The ICT services activities include Wholesale of ICT products, Telecommunications and ICT consultancy services.

The ICT manufacturing industries employed approximately 145 750 employees in all five Nordic countries in 1999. Especially in Finland and Sweden the ICT manufacturing sector is of importance, as the ICT manufacturing industries constitute approximately 10% of the total number of employees within the manufacturing sector in these two countries.

The ICT services sector employed about 352 300 employees in all five Nordic countries in 1999. Especially in Denmark and Sweden the ICT services sector is important, employing 12-14% of the total number of employees within the total services sector in these two countries.

The total turnover of the ICT manufacturing sector in the Nordic countries is estimated to amount to 44 billion ECU in 1999. Especially the ICT manufacturing sector in Finland and Sweden is of importance, as it constitutes 20% and 15%, respectively, of the total turnover in the manufacturing sector.

The total turnover of the ICT services sector in the five Nordic countries is estimated to amount to 91 billion ECU in 1999. The sector constitutes 12-14% of the total turnover in the services sector in all the Nordic countries, except for Iceland (8%). Sweden represents 36% of the total turnover of the ICT services sector in the Nordic countries, followed by Norway (26%), Denmark (22%), Finland (15%) and Iceland (0.7%).

The export share of ICT products was largest in Finland with 25% of total exports in 2000, followed by Sweden with 20%, but in monetary terms the exports were by far the largest in Sweden (18.7 billion Euro in 2000) followed by Finland (12.4 billion Euro in 2000).

The import share of ICT products was largest in Finland with 18.9% of total imports in 2000, followed by Sweden with 17.4%, but in monetary terms the imports of ICT products were the largest in Sweden (13.7 billion Euro in 2000) followed by Finland (6.9 billion Euro in 2000).

Analysing the foreign trade balance of the Nordic countries, Finland and Sweden are characterised by having a surplus in foreign trade in ICT products compared with a deficit in foreign trade in ICT products for the other Nordic countries. The export/import ratio for ICT products was 1.8 in Finland in 2000 and 1.4 in Sweden.

On the Nordic level the ICT manufacturing sector is characterised by having an overall share of female employees of 35% compared to 28% in the total manufacturing industry. For the ICT services activities the share of female employees is 29%, compared to 43% in the total services activities.

Denmark har the highest proportion of female employees within ICT manufacturing (43%), and Iceland the lowest share (23%). In ICT services Iceland and Finland have the largest share of female employees (32%), compared to 26% in Norway as the lowest. In all the Nordic countries Telecommunications is the ICT services sub-sector with the highest proportion of female employment (38% on the Nordic level).

The above mentioned statistical information are the main findings of this Nordic project on ICT sector statistics carried out by the official statistical institutes in the five Nordic countries as part of the institutes work program for development of harmonised and comparable statistics on the Information Society.

1. Introduction

The Information and Communication Technology sector (hereafter called the ICT sector) can be characterised as a focal point for the economic and social development in the Nordic countries as in other parts of the developed world. The importance of the ICT sector can be analysed from two aspects; firstly as a traditional supply side approach where the performance of the ICT sector is analysed in terms of employment, production of goods and services and creation of value added. Secondly, due to the pervasive nature of the products produced by the ICT sector, the sector is of importance for the performance of the remaining sectors of the economy (use of computers for production and administrative purposes, e-commerce, etc.) and for the organisation of the daily life of the citizens in the Nordic countries using mobile phones, watching television or using the Internet via a PC. This publication is a description of the ICT sector as an economic sector describing the development and growth of the sector in terms of employment and economic indicators.

Due to the importance of the ICT sector, the statistical offices in the Nordic countries as in other parts of the world have been confronted with needs for statistical information about the ICT sector and its activities. The first step has been the elaboration of a definition of the ICT sector. This definitorial work has mainly been carried out in the context of the OECD Working Party on Indicators for the Information Society (WPIIS), and as a result of discussions in this group an agreed definition was reached in 1998.

1.1 Definition of ICT Sector

The principles underlying the definition of the ICT sector are the following[1]:

For *manufacturing* industries, the products of a candidate industry:
- Must be intended to fulfil the function of information processing and communication including transmission and display.
- Must use electronic processing to detect, measure and/or record physical phenomena or to control a physical process.

For *services* industries, the products of a candidate industry:
- Must be intended to enable the function of information processing and communication by electronic means.

[1] OECD: Measuring the ICT Sector, Paris 2000

As a consequence of international comparability across countries, the definition was agreed on the level of classes of the International Standard Industrial Classification (ISIC rev. 3), including 11 ISIC classes, cf. annex I. As the Nordic statistical offices are in a position of using more detailed national activity classifications in their statistical production, this publication uses a more precise delineation of the ICT sector, as certain wholesale activities are left out of the definition used in this publication, cf. annex II for more details.[2]

For analytical purposes, this publication operates with the following groupings of the economic activities within the ICT sector:

- *ICT Manufacturing Industry*
- *ICT Services*, of which
    - *Wholesale*
    - *Telecommunications*
    - *Consultancy services*

1.2 Definition of ICT products

The optimal procedure for defining the ICT sector would have been to start by defining the ICT products, and consequently defining the enterprises producing these goods and services. But due to the limited feasibility of collecting data and producing statistics comprising internationally harmonised definitions and concepts at the product level, first priority has been given to the activity approach.

As this publication also includes statistics on ICT commodities, it has been necessary to elaborate a classification of commodities lacking internationally agreed standards. The approach has initially been to limit the ICT products to the products, which by definition belong to the agreed ICT activity classes, cf. the Central Product Classification.[3] The second phase has been to examine these commodities and delete the ones which have not been judged to fulfil the criteria of being intended to fulfil the function of information processing and communication, including transmission and display or using electronic processing to detect, measure and/or record physical phenomena or to control a physical process.

As a result, the analysis of this publication operates with 222 commodities defined as ICT commodities, cf. annex I.

---

2 Paper presented by the Nordic statistical offices at the WPIIS meeting April 2000

3 United Nations: Central Product Classification (CPC) Version 1, New York 1998.

1.3 Data sources, variables and definitions used

This publication is based on official statistics from the Nordic national statistical institutes and as a consequence of the cross-cutting nature of the ICT sector, the data used for this publication has been subtracted from different statistical sources as general enterprise statistics, sector specific statistics or foreign trade statistics. For this reason tables in different chapters might not be totally comparable.

In this publication the following indicators for measuring the importance and dynamics of the ICT sector have been set up:

- *Employment information*
    - Number of persons employed
    - Number of employees
    - Persons employed broken down by gender
    - Persons employed broken down by age
    - Persons employed broken down by level of education

- *Economic information*
    - Turnover
    - Gross value added
    - Wages and salaries

- *Information about commodities*
    - Sale of ICT goods and services
    - Export and import of commodities

The *definitions* of the variables chosen are closely related to the definitions used by Eurostat as provided in *"Methodological Manual of Business Statistics"*[4]*,* but as existing national statistics are used there are national differences in the definition of the variables. Consequently, these differences have to be accepted presupposing that results are not misleading in comparisons across countries. But it is important to underline that statistical information in this publication mainly should be interpreted as reflecting the national structures within the ICT sector. Thus the absolute figures presented in the annex tables should only be compared across countries with utmost caution.

Information on foreign trade with ICT products
There exists no international agreement or recommendation of any harmonised definition for ICT products. Eurostat has provided a preliminary list of products which has been used by the group. The

[4] Eurostat Units D1-D2: Methodological Manual of Business Statistics, Chapter "General Framework" (Annex 1: Definition of variables), 1996

present examination of ICT imports and exports is based on the product group categories, i.e. telecommunications equipment, consumer electronics, computers, electronic components, office machinery, instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes (see detailed list in Annex I). The preliminary list from Eurostat provides the ICT products defined in PRODCOM(98)[5] and also a key to the HS[6] and CPC[7] classifications[8].

Time series
Though the period 1995-2000 is the focal point, the group has wanted to present as long a *time serie* as possible within the limits of the project. A restriction to the earliest year to be covered is presented by the implementation of the harmonised European activity nomenclature, NACE, in each country, as this nomenclature is the basis of the definition. In four of the countries (Finland, Iceland, Norway and Sweden) the implementation has taken place from the reference year 1993, and in Denmark from 1992.

One of the main items of this project is to present comparable data for all the Nordic countries. To profile the ICT sector the group has tried to establish comparable data on the total private sector[9].

Given the rather short period of time covered by the tables it was decided not to make corrections for inflation, but to use the reported values in current prices.

---

[5] Production Communautaire, Eurostat

[6] The Harmonised Commodity Description and Coding System, Eurostat

[7] Central Product Classification, Eurostat

[8] The keys to the HS and CPC classification can be provided by the national statistical agencies.

[9] The delineation of the private sector used in this publication covers the NACE rev. 1 groups 15-37 (manufacturing industry), 45 (construction), 50-74 (distributive trade, hotels and restaurants, transportation, business services), 92 (entertainments) and 93 (Other services activities). This definition excludes a number of activities which - to a large extent - are public or non-profit activities such as Public administration, defense and social security (75), Education (80), Health services and social care (85), Sewage, refuse collection and disposal (90), Organisations (91) Private households with employed persons (95) and International organisations (99).

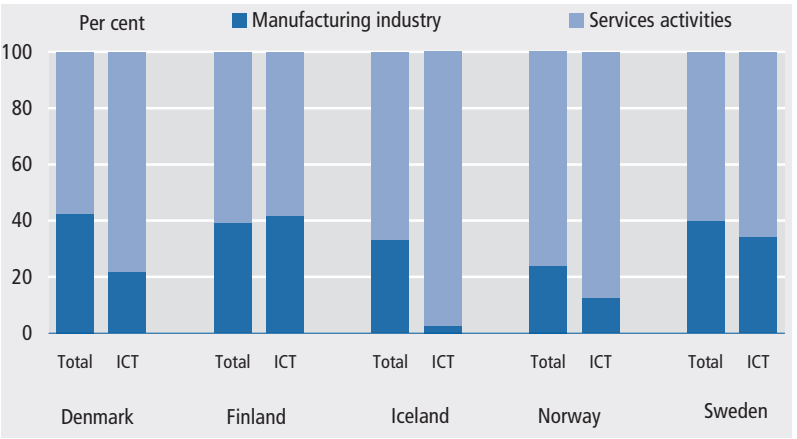
2 The structure of the ICT sector in the Nordic countries

2.0 Introduction

This chapter gives a description of the overall economic importance of the ICT sector in the Nordic countries measured by the number of employees, turnover, value added and wages. The ICT sector is cross-cutting by definition, as the sector includes both manufacturing and services activities. As the statistics are not cross-cutting in coverage in all Nordic countries the manufacturing and the services part of the ICT sector are analysed separately in order to be able to make comparisons across countries.

The aim of this project is to present statistics on a homogeneous basis, but this is not always possible to achieve due to the use of already existing statistics and registers. In this publication "employment" is one of the variables operating with different definitions: As far as Denmark and Sweden are concerned, employment is calculated in number of full time employees, i.e. excluding personal owners of enterprises. Finnish data is calculated as full time persons employed, including personal owners of enterprises, whereas employment in the case of Iceland and Norway is calculated as number of employed persons. For that reason the results in this sub-chapter have to be interpreted with caution. For reasons of simplicity the wordings "employees" or "employment" are used throughout this chapter.

Figure 2.1 Employment distribution in Manufacturing industry and Services activities in general, and in ICT manufacturing and ICT services. 1999



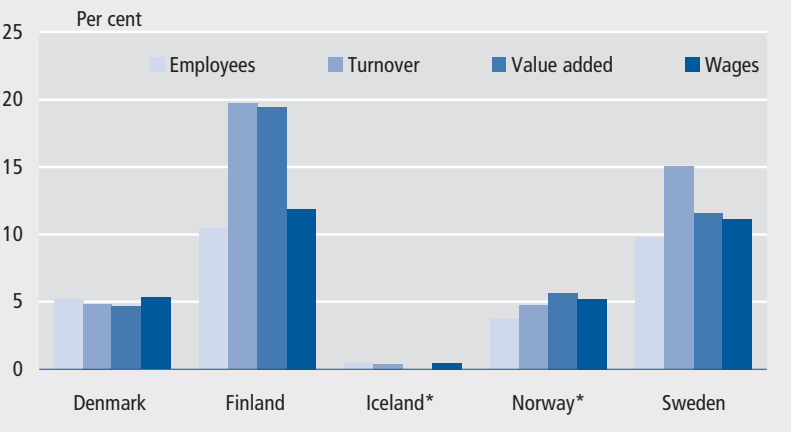
A rough indication of the structure of the activities within the Nordic countries is given by the distribution of employment between manufacturing industry and services activities in general on one hand, and the distribution within the ICT manufacturing and ICT services sector on the other hand, cf. figure 2.1.

When measured by its employment distribution, the manufacturing industry is of major and more or less equal importance in Denmark, Finland and Sweden, cf. figure 2.1. The pattern is not exactly the same for the ICT sector, though, as the Danish ICT manufacturing industry is relatively less important than the Swedish and especially the Finnish ICT manufacturing industry. In Finland and Sweden the ICT manufacturing industry is of same relative importance as the manufacturing industry in general. In Iceland and Norway, whose manufacturing industry is of minor importance compared to the services activities, the ICT manufacturing industry is of even minor importance compared to the ICT services.

Based on the figures from the ICT manufacturing and the ICT services activities, the size of the ICT sector in all five Nordic countries can be estimated to amount to 498 000 employees in 1999 - or on average 8.6% of the total employment in the private sector[10] in the Nordic countries. Compared to an estimated share of 7.1% in 1994 the sector has experienced a relatively larger growth than the total private sector as such in the second half of the nineties. 31% were employed within ICT consultancy services, whereas the ICT manufacturing industry is the second largest single sub-sector within the Nordic ICT sector with 29% of the total employment within ICT. Wholesale represents 23% and Telecommunications 17% of the total employment in 1999 in the Nordic ICT sector.

[10] Cf. note 9 in chapter 1 and definition in annex I.

Figure 2.2 ICT manufacturing industry in per cent of total manufacturing industry. 1999

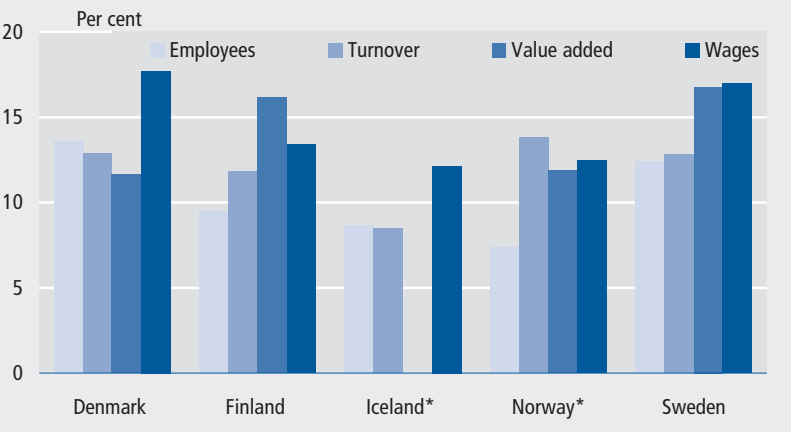


Especially in *Finland* and *Sweden* the *ICT manufacturing sector* is of major economic importance, as it constitutes 10% of the number of employees and 15-20% of turnover in 1999 in these two countries, cf. figure 2.2. In the three other Nordic countries the ICT manufacturing sector is of less importance, representing 5% or less of employment as well as turnover in the manufacturing sector in 1999. One of the explanations of this pattern is that the Finnish and Swedish ICT manufacturing sector include large groups of enterprises as Nokia and Ericsson.

The national importance of the *ICT services sector* shows a somewhat different picture with less significant differences between the countries, cf. figure 2.3. Especially in *Denmark* and *Sweden* the ICT services sector is important, employing 12-14% of the total number of employees and constituting an almost similar share of the turnover of the services sector in 1999. In Finland the ICT services sector represents 9% of employees and 12% of turnover, whereas the Norwegian ICT services sector constitutes 8% of the employed persons and 14% of the turnover in the services sector in 1999. In Iceland the ICT services sector accounts for 8% of employment as well as turnover of the services sector in 1999.

The overall pattern shows that the ICT sector, including both manufacturing and services, is of largest economic importance in Finland and Sweden, where it represents 13-14% of the total turnover in the private sector. Measured by its share of the employment, the ICT sector is most important in Sweden, followed closely by Finland and Denmark.

Figure 2.3 ICT services activities in per cent of total services activities. 1999



* Iceland and Norway: employed persons

2.1 Employment in the ICT sector

This sub-chapter analyses the employment within the ICT sector in more details, breaking down employment into more detailed groups of activities in order to get a better understanding of the national structure of the sector and the possible differences.

The ICT sector is characterised by rapid growth in employment - also compared to the economy in general, cf. table 2.1. In all Nordic countries the employment in the ICT sector has been growing faster in the period observed than in the private sector in general. The job creation is to a large extent due to the growth of the ICT services in all the Nordic countries. For the ICT manufacturing industry the situation is different: the Finnish, Norwegian and Swedish ICT manufacturing industries have had a faster growth than the total private sector - in Finland even exceeding the ICT services activities. In Denmark the growth rate of ICT manufacturing industry has been of same size as in the total private sector.

Table 2.1 Employment in ICT sector 1993-99. Index figures[11]

	ICT manufacturing industry	ICT services			Total ICT services	Total private sector*
		Wholesale	Telecommunications	Consultancy services		
	1995=100					
Denmark						
1993	96	90	87	122	99	94
1994	95	94	100	95	96	96
1995	100	100	100	100	100	100
1996	102	99	116	108	106	101
1997	101	106	105	117	109	103
1998	99	114	127	135	124	106
1999	110	116	133	164	135	108
Finland						
1994	79	88	95	89	91	96
1995	100	100	100	100	100	100
1996	109	109	102	107	106	103
1997	119	119	107	116	114	108
1998	130	122	115	143	127	113
1999	142	126	119	163	136	116
Norway						
1995	100	100	100	100	100	100
1996	103	103	104	113	106	102
1997	110	97	107	150	112	106
1998	111	103	107	180	124	110
1999	120	109	110	209	135	110
Sweden						
1993	90	89	105	81	91	93
1994	94	93	106	87	95	97
1995	100	100	100	100	100	100
1996	101	102	111	115	110	102
1997	107	116	116	130	121	108
1998	119	122	106	153	129	112
1999	126	122	100	183	139	112

Iceland: Data only available for the years 1998-2000
* NACE 15-37,45, 50-74, 92, 93

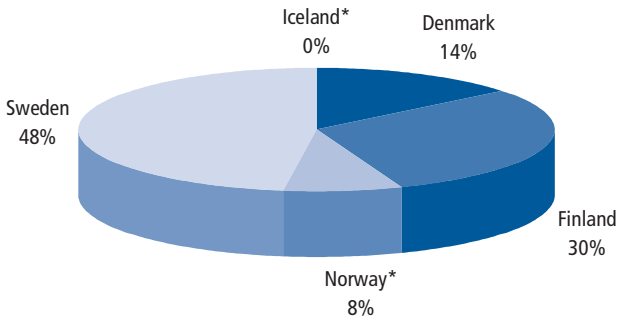
[11] It should be stressed that changes in the classification of enterprises from one year to the other can influence the observed figures in the time serie

The *ICT services sector* has seen a more rapid increase in employment in all the Nordic countries than the private sector in general, which to a very large extent is due to the high growth rate of the employment in *ICT consultancy services*. In Denmark the *Telecommunications* sector has had a relatively larger growth rate than *ICT wholesale*. In Norway the growth rate of ICT wholesale and Telecommunications has been approximately the same, while employment in the ICT consultancy services has more than doubled from 1995 to 1999. In Sweden and Finland employment in ICT wholesale has increased more rapidly than employment in Telecommunications, which might be explained by the fact that the growth period of the Telecommunications sector in Sweden and Finland has set off earlier than the period observed.

2.1.1 Employment in the ICT manufacturing industry

The *ICT manufacturing industries* employed 145 750 employees in 1999 in the Nordic countries, of which nearly half (48%) in the Swedish ICT manufacturing industry, 30% in the Finnish ICT manufacturing industry, 14% in the Danish ICT manufacturing industry, 8% in the Norwegian ICT manufacturing industry and 0.1% in the Icelandic ICT manufacturing industry, cf. figure 2.4.

Figure 2.4 Employment in the ICT manufacturing industry in the Nordic countries 1999



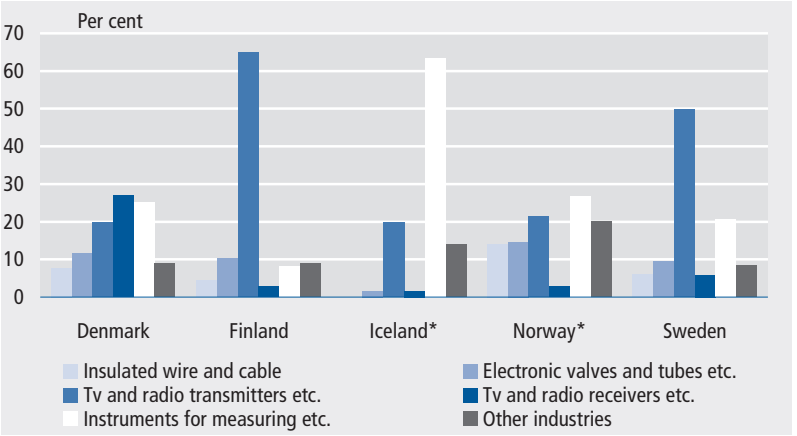
* Iceland and Norway: employed persons

The ICT manufacturing industry consists of 8 manufacturing activity classes, whose importance varies between the Nordic countries, cf. figure 2.5. At the Nordic level *Manufacture of television and radio transmitters and apparatus for line telephony* (NACE 3220) is by far

the largest industry with 72 800 employees in 1999, and thus representing 50% of the employees in the Nordic ICT manufacturing sector in 1999. The second largest industry is *Manufacture of instruments and appliances for measuring, checking, testing etc.* (NACE 3320) with 29 673 employees or 20% of the employees in the ICT manufacturing sector.

At the national level there are significant differences between the countries. In *Denmark* nearly one third of the employees (27%) in the ICT manufacturing sector are employed within *Manufacture of television and radio receivers etc.* (NACE 3230). In no other Nordic country this industry reaches the same relative size - the second largest share is found in Sweden (6%). *Manufacture of instruments and appliances for measuring, checking, testing etc.* (NACE 3320) is the second largest industry, employing 25% of the employees within ICT manufacturing. Compared to the Swedish and especially the Finnish ICT manufacturing sector, employment within the Danish ICT manufacturing sector is less concentrated.

Figure 2.5 Employment in ICT manufacturing industries (NACE classes). 1999



* Iceland and Norway: employed persons

In *Finland* the employment in ICT manufacturing industry is strongly concentrated within *Manufacture of television and radio transmitters and apparatus for line telephony* (NACE 3220), where 65% of the total employment is found. As a consequence of this, all other industries are of minor importance, with *Manufacture of electronic valves and tubes etc.* (NACE 3210) being the second largest industry, representing 10% of the employment.

Iceland's ICT manufacturing industry is dominated by *Manufacture of instruments and appliances for measuring, checking, testing etc.*

(NACE 3320), which represents 63% of the total employment in the ICT manufacturing industry. Thereby Iceland's ICT manufacturing industry is nearly as concentrated within one single industry as the Finnnish ICT manufacturing industry. The second largest industry is *Manufacture of television and radio transmitters and apparatus for line telephony* (NACE 3220), covering 20% of the employment.

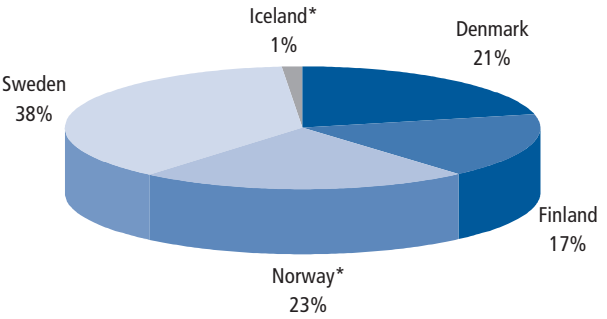
In *Norway Manufacture of instruments and appliances for measuring, checking, testing etc.* (NACE 3320) is the largest ICT manufacturing industry with 27% of the employees. The two second-largest industries are *Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy* (NACE 3220) and *Manufacture of electronic valves and tubes etc.* (NACE 3210), representing 21% and 15%, respectively, of the ICT manufacturing employment. *Manufacture of insulated wire and cable* (NACE 3130) plays a larger role in the Norwegian ICT manufacturing sector than in any other Nordic country as the industry constitutes 14% of the employment. By its employment structure Norway is - together with Denmark - characterised by having the least concentrated ICT manufacturing industry employment of the Nordic countries.

In *Sweden* the ICT manufacturing sector is the largest in the Nordic countries constituting 69 187 employees or 48% of the total employment in the Nordic ICT manufacturing industry. *Manufacture of television and radio transmitters and apparatus for line telephony* is almost as dominant as in Finland, as 50% of the employment in the ICT manufacturing industry is found within this industry. The second largest industry is *Manufacture of instruments and appliances for measuring, checking, testing etc*. representing 21% of the employment.

2.1.2 Employment in the ICT services sector

The *ICT services sector* employed 352 300 employees in 1999 in the Nordic countries, of which 38% in the Swedish ICT services sector, 21% in the Danish ICT services sector, 23% in the Norwegian ICT services sector, 17% in the Finnish ICT service sector, and less than 1% in the Icelandic ICT services sector, cf. figure 2.6.

Figure 2.6 Employment in the ICT services sector in the Nordic countries 1999



* Iceland and Norway: employed persons

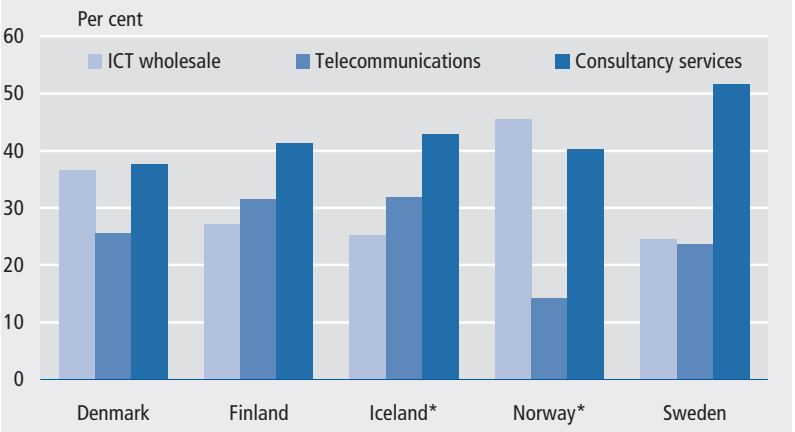
Like the ICT manufacturing sector, the ICT services sector shows a somewhat different structure from one country to another, even though the variations between the Nordic countries are less significant than in ICT manufacturing, cf. figure 2.7. In general *ICT consultancy services* is the largest services sub-sector in the Nordic countries, representing nearly 155 668 employees or 44% of the total employment in the ICT services sector in 1999. With 114 031 - or 32% of the employees - *ICT wholesale* is the second largest ICT services sub-sector. *Telecommunications* constitutes the last 23% of the employment at the Nordic level having almost 83 000 employees in 1999.

In *Denmark* ICT consultancy services account for the largest share (38%) of the ICT services sector employment in 1999, followed closely by ICT wholesale activities (37%). Telecommunications represents the last 26% of the employment. None of the sub-sectors are significantly dominant compared to the other Nordic countries.

In *Finland* ICT consultancy services is also the largest ICT services sub-sector, representing 41% of the employees in 1999. Telecommunications is the second largest sub-sector with 19 300 or nearly one third of the employees. Like the Danish ICT services sector, none of the sub-sectors are especially dominant.

Iceland is characterised by having a distribution of the employment between the sub-sectors, which is more or less identical to the distribution of the Finnish ICT services sector. Telecommunications plays a slightly more significant role, though, representing 32% of the employment, making Iceland the Nordic country where Telecommunications constitutes the largest part of the ICT services activities.

Figure 2.7 Employment in ICT services. 1999



Norway is dominated by ICT wholesale activities, which represents nearly half (45%) of the employment in ICT services. At the same time Telecommunications constitutes the lowest share of ICT services in any of the Nordic countries, as only 14% of the employment is related to this sub-sector.

In *Sweden* the ICT services sector is even more dominated by ICT consultancy services than in Norway as the employment constitutes 52% of the employment in the ICT services sector in 1999. The sub-sector represents 19% of all employees in the Nordic ICT services sector. ICT wholesale and Telecommunications account for 25% and 23% of the employees, respectively.

2.2 Economic information

The focus in this statistical description of the ICT sector in the Nordic countries is on the employment aspects of the ICT activities. In this sub-chapter a number of economic indicators (turnover, gross value added and wages and salaries) are presented in order to supplement the structure described in 2.1.

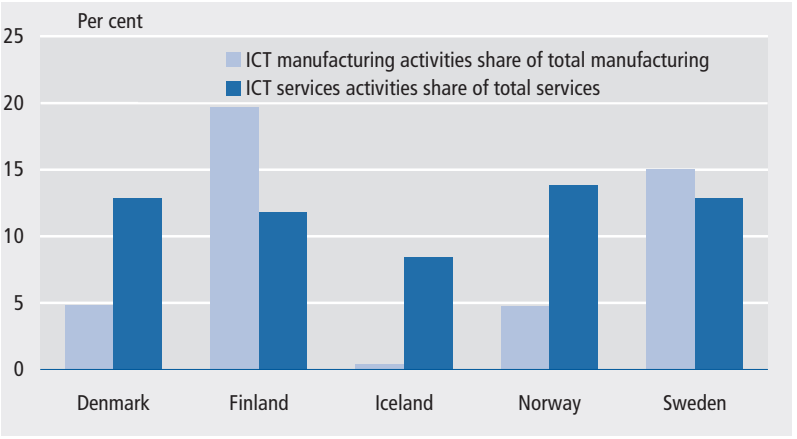
2.2.1 Turnover

The total turnover of the *ICT manufacturing industry* in the Nordic countries is estimated to amount to 44 billion ECU in 1999, of which the ICT manufacturing industry in Sweden accounted for 50%, followed by the ICT manufacturing industry in Finland (37%), Denmark (7%), Norway (6%) and Iceland (0.03%).

The national shares of the *ICT manufacturing industry* show a pattern similar to employment, as the ICT manufacturing industry in *Finland* shows the relatively largest share of the total turnover in manufacturing industry (20%) compared to 15% for the Swedish ICT manufacturing industry, followed by Denmark and Norway (each 5%) and Iceland (0.4%), cf. figure 2.8.

Compared to the similar employment shares, the figures show two tendencies: for *Sweden and Finland* - the two countries with the largest ICT manufacturing sector - ICT manufacturing generates a turnover share exceeding the employment share. The opposite pattern applies to *Denmark*, *Norway* and *Iceland*, all having a larger share of the employment than of turnover. A possible explanation is the presence of the large multinational enterprises of domestic origin in Sweden and Finland.

Figure 2.8 Share of turnover in ICT manufacturing industry and ICT services sector 1999

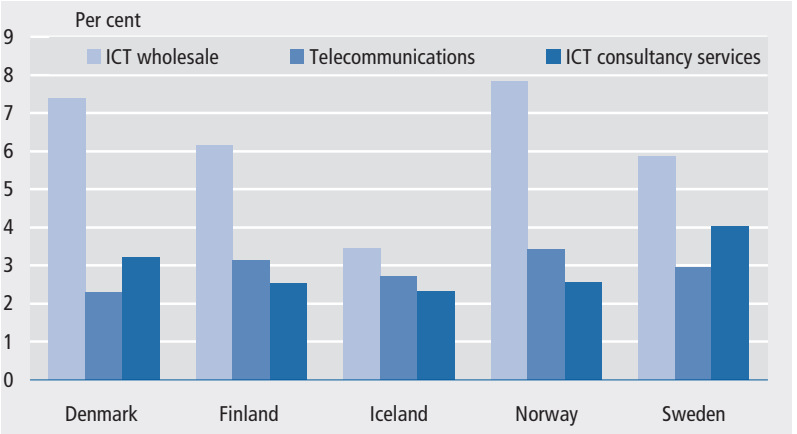


The total turnover of the *ICT services sector* in the five Nordic countries is estimated to 91 bilion ECU in 1999. The national distribution is not exactly the same for the ICT services as for ICT manufacturing, as Sweden is still representing the largest share (36%), but then followed by Norway (26%), Denmark (22%), Finland (15%) and finally Iceland (0,7%).

Measured by its share of turnover compared to total services activities, the ICT sector is of almost equal importance in all the Nordic countries, constituting a share of 12-14%. Only in Iceland this share is lower (8%).

Not surprisingly, *ICT wholesale* is by far the largest ICT services sub-sector in all the Nordic countries, except Iceland, measured by its turnover, cf. figure 2.9. ICT wholesale creates approximately the same share of turnover of the national services sector (6-8%) in Denmark, Finland, Norway and Sweden, compared to 3% in Iceland. In *Finland*, *Iceland* and *Norway, Telecommunications* represent the second largest ICT sub-sector regarding turnover, while *Sweden* and *Denmark* are characterised by the relatively large importance of *ICT consultancy services*.

Figure 2.9 Share of turnover in ICT services in per cent of total services activities 1999



The relation between the turnover and the employment share also shows differences for the ICT services: *Finland*, *Norway and Sweden* all have a larger turnover share than employment share, although of minor magnitudes, while for *Denmark* and *Iceland* employment and turnover shares are more or less the same.

The analysis of the development of the employment in the ICT sector in the Nordic countries showed a sector characterised by a considerable growth, cf. table 2.1. Looking at the development of the turnover in current prices of the ICT sector in mid-nineties the growth is even more rapid, c.f. table 2.2. This is especially the case for the *ICT manufacturing industry* in Finland, where the turnover has nearly tripled from 1995 to 1999, and in *Sweden*, where the turnover has nearly doubled in the same period. These are also the countries, which have the largest ICT manufacturing industries.

Table 2.2 Turnover (current prices), index figures[12]

	ICT manu-facturing industry	ICT services			Total ICT services	Total private sector*
		Wholesale	Tele-commu-nications	Consul-tancy services		
	1995=100					
Denmark						
1993	95	77	80	72	77	87
1994	100	93	94	86	92	95
1995	100	100	100	100	100	100
1996	110	112	97	92	105	103
1997	118	128	108	122	123	109
1998	123	144	122	153	141	113
1999	142	142	124	182	146	117
Finland						
1994	76	80	91	92	85	93
1995	100	100	100	100	100	100
1996	117	122	120	113	120	107
1997	155	148	147	119	141	119
1998	210	161	194	177	172	129
1999	286	175	207	196	187	137
Norway						
1995	100	100	100	100	100	100
1996	112	106	112	116	109	106
1997	126	113	128	155	121	116
1998	128	125	143	195	137	123
1999	155	128	155	233	147	126
Sweden						
1993	58	62	44	69	59	77
1994	81	71	93	87	80	88
1995	100	100	100	100	100	100
1996	117	98	91	112	99	101
1997	136	112	106	124	113	111
1998	161	130	123	156	134	118
1999	188	131	127	197	146	124

* NACE 15-37,45, 50-74, 92, 93

Also the *ICT services sector* has had a noticeable growth in turnover in the mid-nineties, exceeding the level of growth in the Services activities in general in all the Nordic countries. Only in Denmark the growth in ICT services activities has been more rapid than the growth in ICT manufacturing. Within the sub-sectors of ICT services, the increase of turnover generally is largest in *ICT consultancy services*, where turnover has almost doubled from 1995 to 1999 - and in Norway it has more than doubled in the same period. In Finland

[12] It should be stressed that changes in the classification of enterprises from one year to the other can influence the observed figures in the time series

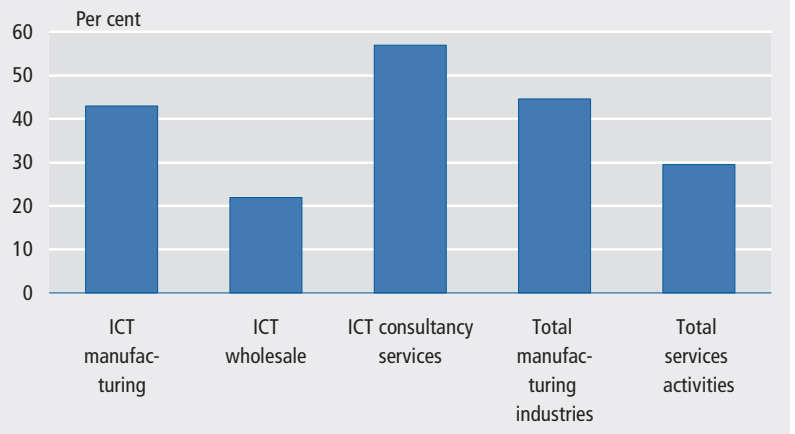
both Telecommunications and ICT consultancy services have seen a large growth in turnover from 1995 to 1999; Telecommunications has more than doubled its turnover, while ICT consultancy services' turnover has increased by 96%.

2.2.2 Value added

When identifying the economic importance of the ICT sector, gross value added is a better indicator than turnover. The gross value added indicates the profitability of the sector, as the gross value added is the earnings, which are left to pay the production factors labour and fixed capital. On the Nordic level Sweden generates 41% of the gross value added of the ICT manufacturing sector, Finland 40%[14], Denmark 11% and Norway 7%[15].

Gross value added shares in ICT services are very similar to the shares of turnover. Sweden generates 41% of gross value added in ICT services on the Nordic level, which is slightly more than its share of turnover (36%). Norway represents 22% of gross value added (turnover share 26%), Denmark 20%[16] (turnover share 22%) and Finland 17% (turnover share 15%).

Figure 2.10 Gross value added in per cent of turnover. Denmark 1999



[13] It should be stressed that changes in the classification of enterprises from one year to the other can influence the observed figures in the time series

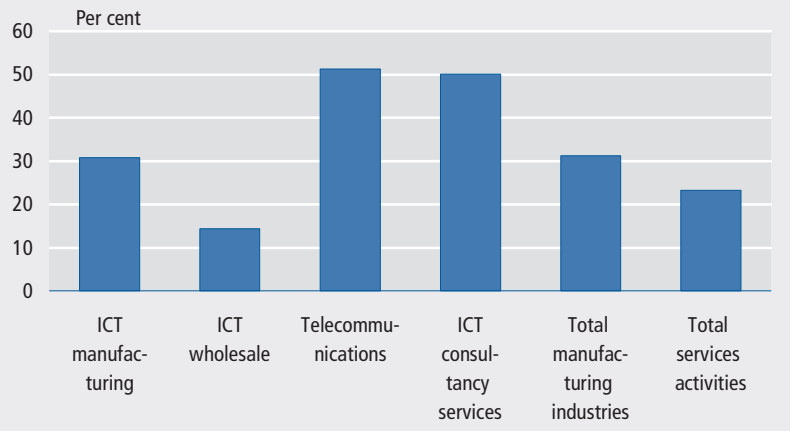
[14] Value added at factor costs

[15] No data on value added is available from Iceland

[16] No figures are available for value added in the Danish Telecomunications sector

In *Denmark*, the ICT manufacturing industry generates almost the same share of gross value added compared to turnover as the manufacturing industry in general, cf. figure 2.10. The ICT consultancy services generates a relatively high gross value added compared to both ICT manufacturing industry and the services sector as such; the opposite situation applies to ICT wholesale. In general gross value added compared to turnover is higher than in the other Nordic countries.

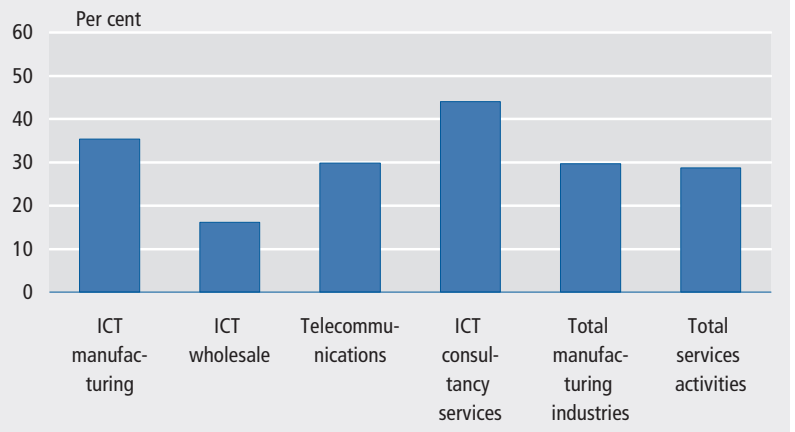
Figure 2.11 Gross value added in per cent of turnover. Finland 1999



In *Finland* the gross value added compared to turnover in ICT manufacturing industry and in Manufacturing industry in general is of the same size. Telecommunications and ICT consultancy services both generate a gross value added compared to turnover, which is more than twice the size of the total services activities, cf. figure 2.11.

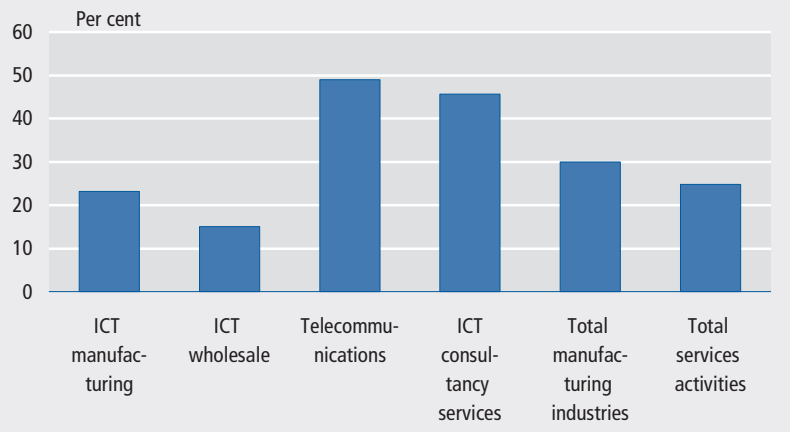
In *Norway* the gross value added compared to turnover does not differ quite as much between the sectors as in Denmark and Finland though the overall picture is similar to these two countries, cf. figure 2.12. ICT manufacturing generates a relatively larger share of gross value added compared to turnover than the Manufacturing industry in general. ICT consultancy services is the ICT sub-sector generating the highest share of gross value added compared to turnover, while the share of ICT wholesale is somewhat below both the total Manufacturing sector and the total Services activities.

Figure 2.12 Gross value added in per cent of turnover. Norway 1999



In *Sweden*, a somewhat different pattern can be found, as the ICT manufacturing industry generates less gross value added compared to turnover than the manufacturing industry as such, cf. figure 2.13. Within the ICT services sector, the highest share is found in Telecommunications, followed closely by ICT consultancy services, both creating a larger share than services in general.

Figure 2.13 Gross value added in per cent of turnover. Sweden 1999



2.2.3 Wages and salaries

Wages and salaries are difficult to compare across countries as actual level of taxation, other personnel costs, general level of living costs etc. influence the purchasing power of the wages paid. In this

project, wages and salaries are only analysed in relation to the employment share at the level of each sub-sector.

As the statistics used in this project operate with different definitions of "employment" as full-time employees (Denmark and Finland), employees (Sweden) and persons employed (Iceland and Norway), the results in this sub-chapter have to be interpreted with utmost caution.

Sweden accounts for 45% of wages and salaries in ICT manufacturing on the Nordic level, cf. figure 2.14, which nearly equals the share of employment, which is 48%. The same pattern applies to the Finnish ICT manufacturing industry. The Danish and Norwegian ICT manufacturing industries on the other hand represent slightly higher shares of wages and salaries (16% and 12%, respectively) than of employment (15% and 8%, respectively).

Figure 2.14 ICT manufacturing industry. Share of total wages and salaries and employment of total manufacturing industry

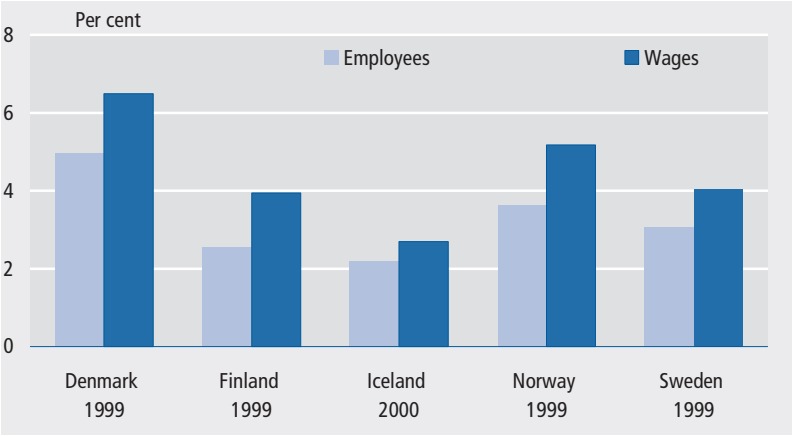
* Iceland and Norway: employed persons

ICT manufacturing industry is characterised by the fact that in all the Nordic countries the relative share of total wages and salaries is higher than their shares of employment, even though the difference in Denmark and Iceland is small. This indicates that the average wage per employee in ICT manufacturing is higher than for manufacturing industry in general.

Sweden plays a less significant role in the *ICT services sector* than in ICT manufacturing, but still it represents more than one third of the total wages and salaries paid in all four Nordic countries. The ICT services sector is characterised by a larger proportion of wages and salaries compared to employment than the services sector in gen-

eral, cf. figures 2.15-2.17. The differences are much larger than for the ICT manufacturing industry, indicating that the requirements of the qualifications and skills of the employees within ICT services are higher than of the employees within services in general. The qualifications of the employees in the form of the formal level of education of the employees are investigated further in chapter 5.

Figure 2.15 ICT wholesale. Share of total wages and salaries and employment of total services activities

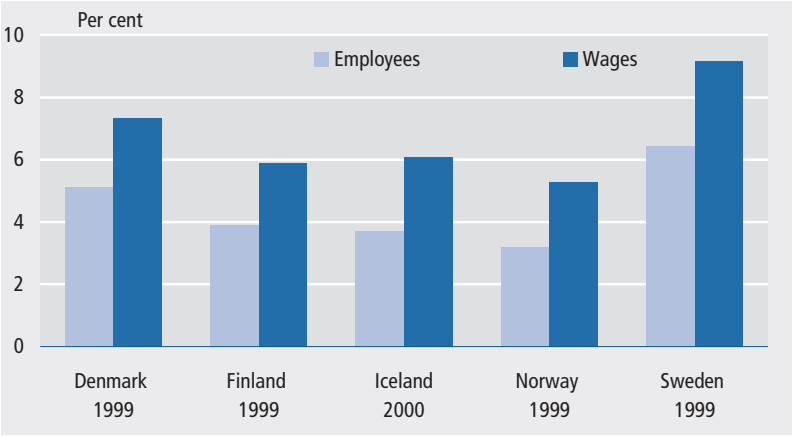


In Denmark the share of wages and salaries in ICT wholesale amounts to 6% of total wages in the services activities, compared to an employment share of 5%, cf. figure 2.15.

Figure 2.16 Telecommunications. Share of total wages and salaries and employment of total services activities

In Telecommunications the relative shares of wages and salaries compared to employment shares show minor differences among the Nordic countries than ICT wholesale, cf. figure 2.16. In Norway though, the share of wages and salaries of the total private services sector in Telecommunications is nearly twice the size of the employment share of the sub-sector.

Figure 2.17 ICT consultancy services. Share of total wages and salaries and employment of total services activities



In ICT consultancy services the gaps between share of employment and share of wages are remarkably higher than in the two other sub-sectors of ICT services, cf. figure 2.17. The largest gap is found in Sweden where the share of wages is 3 points higher than the share of employment.

3. Product statistics for the ICT consultancy services

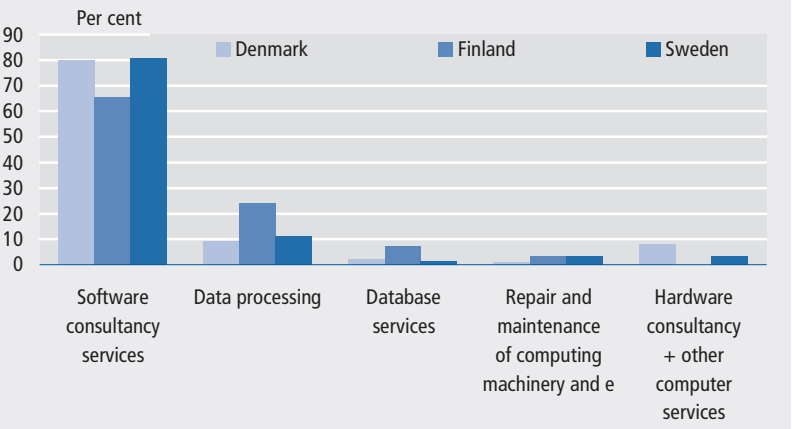
As stated in chapter 2 ICT consultancy services has been the fastest growing ICT sub-sector in relation to employment as well as turnover in the Nordic countries from 1995 and onwards. In 1999 ICT consultancy services accounted for 34% of the ICT services sector employment in Denmark, whereas it was even more important in Finland and Sweden, where the corresponding figures were 39% and 46%, respectively.

This chapter analyses the production of the ICT consultancy services in terms of distribution of turnover on different types of products, and the product specialisation within the ICT-consultancy services. The data material covers Denmark, Finland and Sweden; these countries have carried out comparable surveys for the year 2000 (Denmark and Finland[17]) and 1999 (Sweden)[18].

3.1 Turnover distributed by activities and products

Software consultancy services account for the largest share of the turnover in the threee countries, whereas the second-largest activity measured by its share of total turnover, is *Data processing*, c.f. figure 3.1.

Figure 3.1 Turnover of ICT consultancy services distributed by activity groups



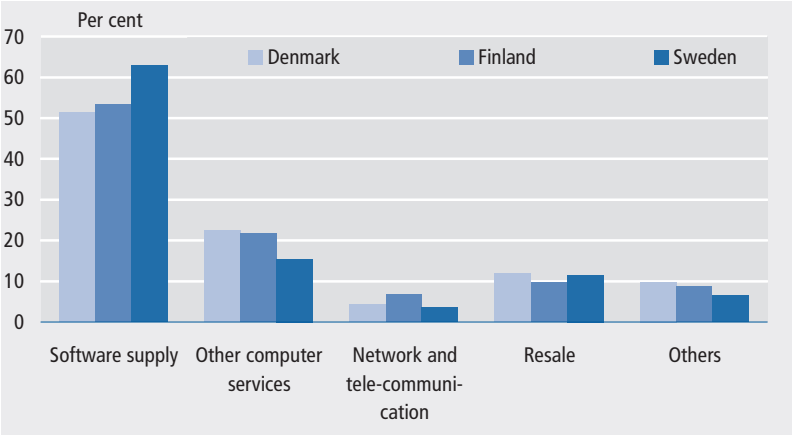
[17] Data for Finland are preliminary.

[18] The list of products related to ICT consultancy services is developed by Eurostat. The base of the list is United Nation's Central Product Classification (CPC).

The importance of Software consultancy services and Data processing differs between the countries, as Software consultancy represents 80-81% of the turnover in Denmark and Sweden, against a somewhat lower share of 65% in Finland. In Finland, on the other hand, Data processing is economically more important as this activity generates nearly a quarter of the turnover (24%), whereas the corresponding figures for Denmark and Sweden are 9% and 11%, respectively.

As a consequence of the dominating role of *Software consultancy* and *Data processing*, the other activities account for less than 10% of the turnover of ICT consultancy services. *Database activities* are largest in Finland (7%), whereas *Hardware consultancy* and *Other computer services* are most important in Denmark (8%).

Figure 3.2 Turnover of ICT consultancy services distributed by product groups



Software supply, a product group consisting of products as *Packaged software*, *Customized software* and *Computer consultancy services*, is by far the most important product group of the ICT consultancy services, representing 51% of the total turnover of the sub-sector in Denmark, 53% in Finland and 63% in Sweden.

In Denmark the most important product within Software supply is *Customized software*, accounting for 32% of the turnover, followed by *Computer consultancy services* (11%).

In Finland *Customized software* is also the most important product, representing 25% of the total turnover of the ICT consultancy services, whereas the second-largest product is *Packaged software* (18%).

Sweden differs from the two other countries by the importance of *Packaged and customised software*, which constitutes nearly half (49%) of the total turnover.

The second largest product group in the three countries represented is Other computer services, which account for 22% of the total turnover in Denmark and Finland and 15% in Sweden. The product group consists of *Computer facilities management and data processing*, *Database services*, *Systems maintenance services* and *Computer hardware services, repair and maintenance of computing machinery and equipment*.

In all three countries the largest single product within this cathegory is *Computer facilities management and data processing*, which accounts for 13% of turnover in Denmark, whereas the corresponding figures for Finland and Sweden are 8%.

3.2 Product specialisation

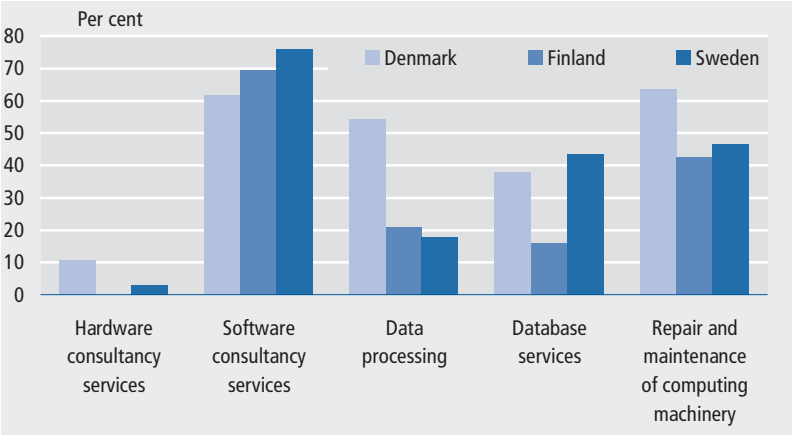
Measuring the share of turnover related to products, which are consistent with the main activity, can be used as a way to measure the specialisation of the activities. This would give an indication of the degree to which the enterprises within an activity are operating within their core competences.

In practice the degree of product specialisation is measured through the concentration ratio of the net turnover of the most important product, which should also be consistent with the main activity of the enterprise.

Software consultancy services must be characterised as the most specialised activity among the the three Nordic countries, cf. figure 3.3, and this is especially the case for the Swedish Software consultancy services, which have a ratio of 76%.

In general though, the Danish ICT consultancy services are the most specialised among the three countries represented, cf. figure 3.3. Within *Repair and maintenance of computing machinery* the product specialisation ratio is relatively much higher (64%) than in Finland (42%) and Sweden (47%). Within *Data processing* the same picture applies: here the Danish product specialisation ratio is 54%, compared to ratios of 21% in Finland and 18% in Sweden.

Figure 3.3 Product specialisation ratios[19] within ICT consultancy services



[19] Eurostat has defined product specialisation as follows: the ratio of turnover related to the most important product, which must also be consistent with the main activity of the enterprise, must be minimum 75% for an enterprise to be characterised as specialised. Eurostat defines products specialisation on the business level, while product specialisation here is defined on basis of data on aggregated levels.

4. Foreign trade

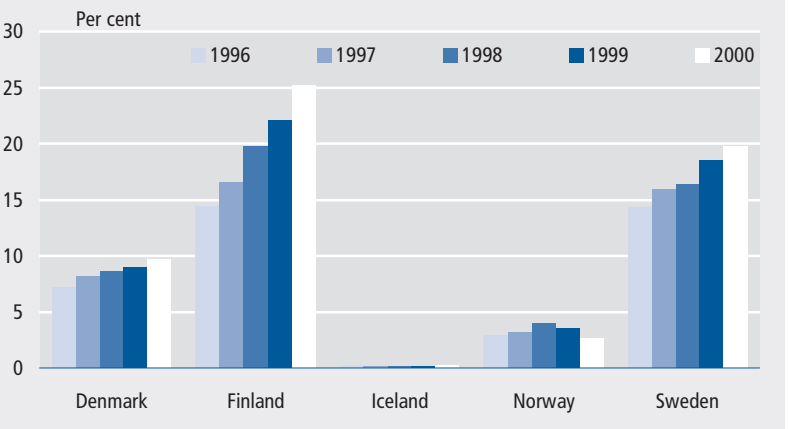
The volumes and trends of exports and imports of industrial information and communication technology (ICT) products describe a country's competitive edge in such strategic branches. The present examination of ICT imports and exports is based on the product group categories defined by Eurostat (described in Annex 1), i.e. telecommunications equipment, consumer electronics, computers, electronic components, office machinery, and instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes.

4.1 Information and communication technology exports and imports in the Nordic countries

The notable differences between countries as regards ICT exports and imports indicate that Finland and Sweden are the countries where information and communications technologies play a significant role in the countries' economic performance. Oil and natural gas represent an integrated part of Norwegian economy, their role is dominant in foreign trade as well. Fish has the same position in Iceland. According to foreign trade figures for Denmark, no dominant industry is observed.

ICT products as a proportion of total exports and imports increased in all Nordic countries in 1996-2000, except in Norway. ICT products made up the highest proportion of total exports in Finland and Sweden, cf. figure 4.1. In Finland these products made up some 14% of Finland's total exports in 1996, the figure was 25.2% in 2000. The figure for Sweden was 19.8% in 2000. Due to the dominant role of oil industry in Norway the proportion of ICT exports is reflected by the price of oil.

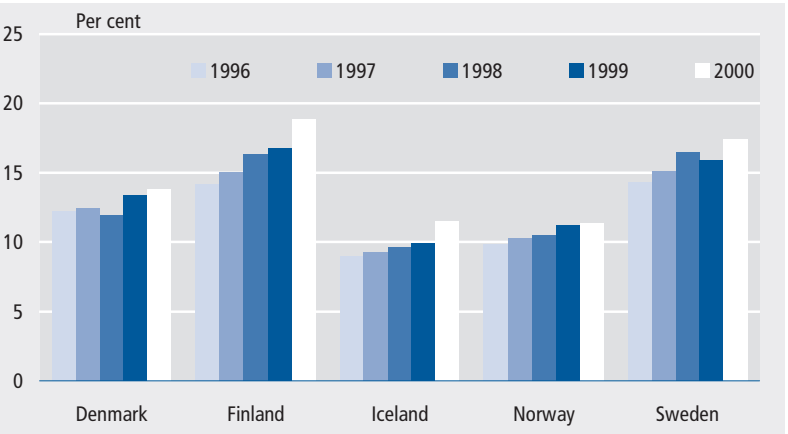
Figure 4.1 ICT products as a proportion of total exports in 1996-2000



Source: National Statistical offices.

The proportion of ICT products of total imports is more even, although the proportion in Finland and Sweden is clearly higher than in the other countries, cf. figure 4.2. The main reason seems to be electronics components, which are imported and then used in the manufacturing of telecommunications equipment (see annexed tables).

Figure 4.2 ICT products as a proportion of total imports in 1996-2000

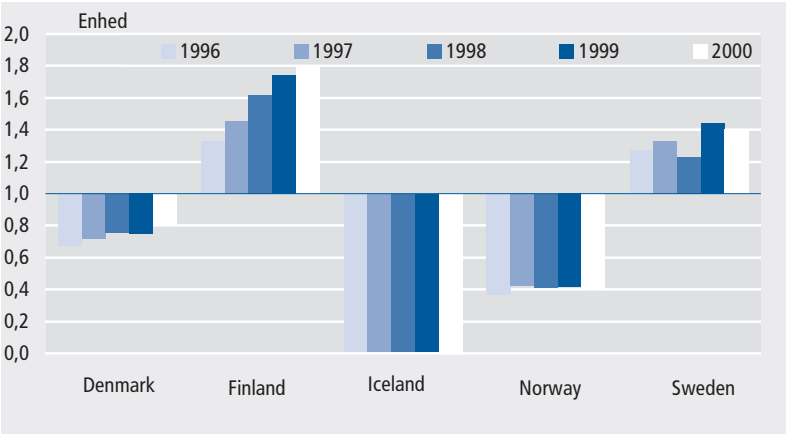


Source: National Statistical offices.

The total foreign trade turnover in ICT products was by far the largest in Sweden (32 374 million Euro in 2000) being 67% higher

than in the second country Finland (19 369 million Euro in 2000). Sweden was also the largest country to export ICT products, the figure was approximately 18 653 million Euro in 2000. The highest values of imports were recorded in Sweden, while Finland and Denmark imported only half that much ICT products in 2000.

Figure 4.3 Exports/imports ratio of foreign trade in ICT products in 1996 -2000



The balance between ICT imports and exports in 1996-2000 showed the greatest surplus in Finland, where the exports/imports ratio was 1.80 in 2000, being in Sweden 1.36, i.e. both countries have exported ICT-products more than imported them, cf. figure 4.3. The exports/imports ratio of ICT-products seldom reaches 1.00, but in countries like Japan and Korea the ratio has traditionally been high.

Both exports and imports in all the Nordic countries have been growing through all the period observed, cf. figure 4.4. The growth in Iceland both in exports and imports has been significant but the total amount in absolute terms is modest. The growth in the other countries follow more or less the same pattern. Both have been growing, ICT exports more than imports, also in Denmark and Norway where the balance between ICT exports and imports shows deficit.

Table 4.1 Foreign trade in ICT products in 1996 -2000, in 1000 ECU and Euro

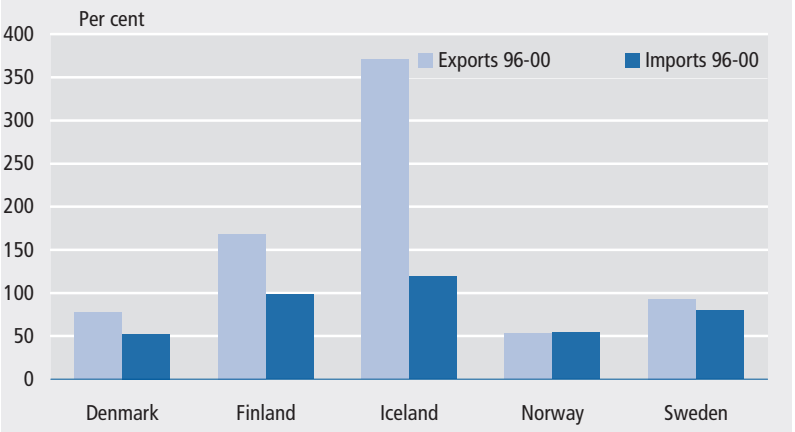
	Denmark	Finland	Iceland	Norway	Sweden
1996					
Exports	2 942 203	4 641 016	1 062	1 124 635	9 675 537
Imports	4 386 964	3 489 176	135 202	2 752 285	7 634 466
1997					
Exports	3 502 814	6 004 106	1 725	1 345 135	11 676 714
Imports	4 891 630	4 119 867	152 282	3 228 481	8 781 525
1998					
Exports	3 704 673	7 607 067	2 290	1 453 204	12 343 775
Imports	4 896 597	4 707 790	194 874	3 503 945	10 060 215
1999					
Exports	4 178 175	8 679 819	2 347	1 508 743	14 732 290
Imports	5 589 412	4 981 605	214 650	3 608 550	10 236 684
2000					
Exports	5 212 945	12 443 484	4 997	1 718 033	18 653 348
Imports	6 673 783	6 925 394	296 263	4 225 354	13 720 869

Exchange rates in Annex II: Table 3.4.b.

Denmark's largest export group is telecommunications equipment, which accounted for 24% of the total value of ICT exports in 1996 and 33% in 2000. The export of ICT products is more evenly distributed than in Finland and Sweden. The second largest category, instruments and equipment for detecting, measuring etc., scored 21% in 2000. The largest product groups among ICT imports were computers and telecommunications equipment.

The negative balance of trade in ICT products is mainly attributable to a large deficit in the category of computers. Instruments and equipment for detecting, measuring etc. show a positive balance, however. The total balance of trade has been positive through all the period 1996-2000.

Figure 4.4 Growth rate in foreign trade with ICT products from 1996 - 2000



In *Finland,* the largest export group is telecommunications equipment, which accounted for 67% of the total value of ICT exports in 1996 and as much as 84% in 2000. Some 21% of total exports in Finland were due to telecommunications equipment. The largest product groups among ICT imports were telecommunications equipment and electronic components. In general it may be said, however, that ICT imports are not dependent on the largest product groups to the same extent as exports are.

The positive balance of trade in ICT products is mainly attributable to the large surplus in the category of telecommunications equipment. Instruments and equipment for detecting, measuring etc. show surplus as well, while all the other categories are imported more than exported. The total balance of trade has been positive and has grown continuously.

Iceland's largest export group is instruments and equipment for detecting, measuring etc., which accounted for 54% of the total value of ICT exports in 1996 and 2000. The second largest category, telecommunications equipment, scored 16% in 2000. The largest product groups among ICT imports were computers and telecommunications equipment.

The negative balance of trade in ICT products is mainly attributable to the large deficits in the categories of computers and telecommunications equipment, but there is no surplus in any category of ICT products. Also the total balance of trade turned negative in 1997. *Iceland*'s largest export group is instruments and equipment for detecting, measuring etc., which accounted for 54% of the total value of ICT exports in 1996 and 2000. The second largest category,

telecommunications equipment, scored 16% in 2000. The largest product groups among ICT imports were computers and telecommunications equipment.

The negative balance of trade in ICT products is mainly attributable to the large deficits in the categories of computers and telecommunications equipment, but there is no surplus in any category of ICT products. Also the total balance of trade turned negative in 1997.

For *Norway* the largest export group is telecommunications equipment, which accounted for 37% of the total value of ICT exports in 1996 and 38% in 2000. The second largest category, computers, scored 25% in 2000.

The largest product groups among ICT imports were computers and telecommunications equipment. The negative balance of trade in ICT products is mainly attributable to a large deficit in the category of computers, but there is no surplus in any category of ICT products. As the role of the oil industry is so dominant, there are great fluctuations in the total balance of trade. The total balance of trade has been positive, however

Sweden's largest export group is telecommunications equipment, which accounted for 71% of the total value of ICT exports in 1996 and 76% in 2000. Some 15% of the total exports in Sweden comes from telecommunications equipment. The largest product groups among ICT imports were computers, telecommunications equipment and electronic components. As in the case of Finland, ICT imports are not dependent on the largest product groups to the same extent as exports.

The positive balance of trade in ICT products is mainly attributable to a large surplus in the category of telecommunications equipment. The total balance of trade has been positive through 1996-2000, but despite a slight drop in 1998 the surplus in the total balance of trade has been growing.

5. A profile of the employed persons in the ICT sector

5.0 Introduction

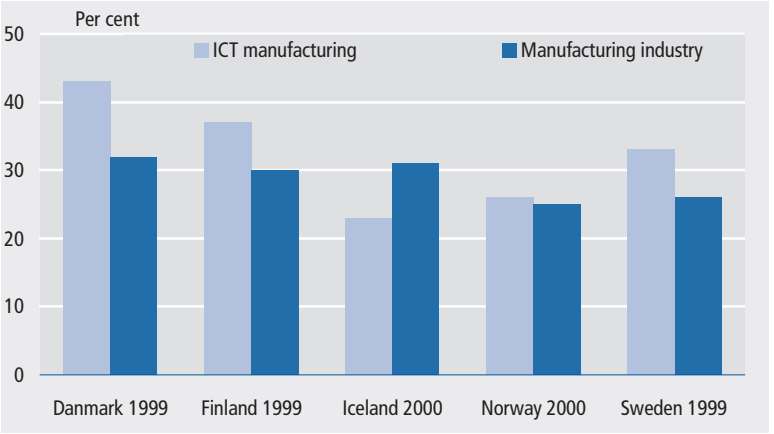
In understanding the skill requirements and the job creation process within the ICT sector, more detailed information is needed on the demographic background of the employees, such as gender, age, occupation, education and work experience. Especially the issue of the requirements of educational qualifications has been in focus in relation to the ongoing discussions of the future growth possibilities of the ICT sector in the Nordic countries.

In this chapter the point of focus is the gender, age and educational level of the persons employed in the ICT sector, with the aim of identifying the characteristics of the persons employed compared to the employment in general.

5.1 Gender structure in the Nordic ICT sector

The Nordic countries all have relatively large shares of women on the labour market, as the overall employment rates of women in the Nordic countries in 2000 ranges between 64% (Finland) as the lowest and 83% (Iceland) as the highest[20].

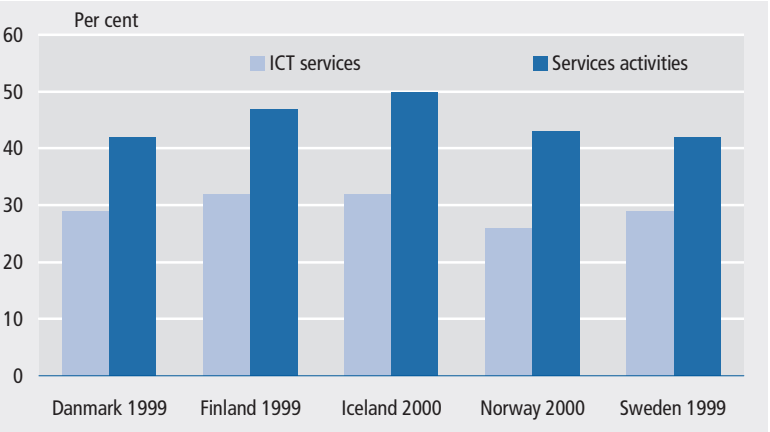
Figure 5.1 Share of female employees in ICT manufacturing and in Manufacturing industries in general in the Nordic countries



[20] Nordic Council of Ministers: Nordic Statistical Yearbook 2001

Generally the fe male share of employment is higher in the services activities than in the manufacturing industries in all Nordic countries. On the Nordic level the female share is 43% in the Services activities and 28% in Manufacturing industries. This pattern does not apply to the ICT sector though, as relatively more women are employed in the ICT manufacturing industries than in the ICT services sector, cf. figures 5.1 and 5.2.

Figure 5.2 Share of female employees in ICT services and in Services activities in general in the Nordic countries

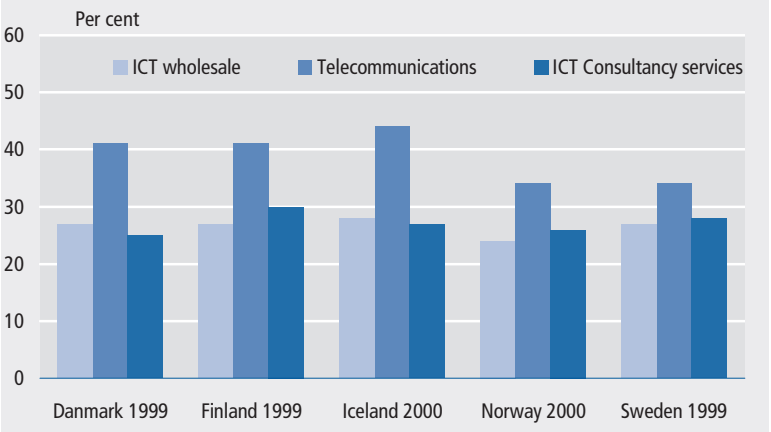


In the *ICT manufacturing industries* the female share exceeds the average share of Manufacturing industries in general, especially in Denmark, Finland and Sweden, while the gender structure in Norway is almost similar in ICT manufacturing and in manufacturing industries in general. Iceland is the only country where there are relatively fewer women in ICT manufacturing than in Manufacturing industry in general.

The shares of females employed in the ICT services sector of the Nordic countries are very close to the shares of employment, which means that the share of women employed in ICT services is more or less identical among the Nordic countries, cf. figure 5.3.

The *ICT services activities* are characterised by a generally lower proportion of female employees (29%) than the Services activities in general (43%), cf. figure 5.2. Iceland, whose share of women in the Services activities is much higher than the average of the Nordic countries (50% and 43%, respectively), has the same proportion of women in ICT services as the other Nordic countries.

Figure 5.3 Share of female employees in the ICT Services sub-sectors in the Nordic countries



The sub-sector level of ICT services shows significant differences, cf. figure 5.3, as *Telecommunications* with an average share of 38% of female employees is close to the average female employment level of Services activities in general. The opposite situation applies to the sub-sectors *ICT wholesale* and *ICT consultancy services* which both show a very low female representation with 26%, respectively 27% females employed. The female proportion in ICT wholesale activities is more or less the same in all the Nordic countries, ranging from 24% (Norway) to 28% (Iceland). In ICT Consultancy services there are certain variations between the countries, as Denmark has the lowest rate of female employees (25%), Iceland, Norway and Sweden are close to the overall Nordic level (27%), and Finland, with 30%, shows the highest share of female employees.

5.2 Age structure in the Nordic ICT sector

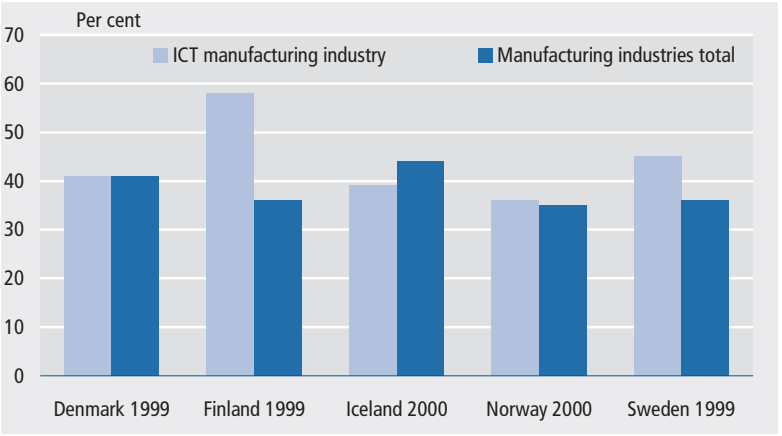
Previous studies have shown the ICT sector, especially the ICT consultancy services, as a *"young industry"* in the sense that relatively large shares of the employees are young[21]. In the discussion concerning the competitiveness of the ICT sector worries about the aging work force within the ICT activities have been brought forward. This sub-chapter presents the statistical information related to the age structure of the employment within the ICT sector by defining an age group of *"young employed persons"*, ie. persons below 35 years. On the Nordic level the persons employed in the ICT sector are generally younger than in the private sector as a total. In

[21] See S. P. Bøegh Nielsen and S. Rikama: Employment Characteristics in Market Services Activities: Case Study of Denmark and Finland, paper presented at the Voorburg Group Meeting on Services Statistics 1997

ICT manufacturing 48% are below 35 years, and in ICT services the similar share is 45%, whereas the average share of the private sector is 40%.

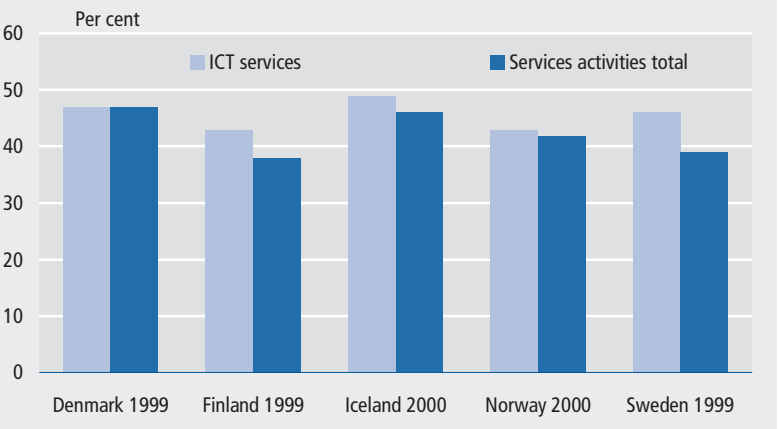
Generally the relative shares of young persons employed in the Nordic countries are very similar to the relative shares of employment. The Swedish ICT manufacturing industry employs nearly half (45%) of the total number of persons employed below 35 years in the Nordic ICT manufacturing sector, 36% are employed within the Finnish, 13% in the Danish, 6% in the Norwegian and 0.1% in the Icelandic ICT manufacturing industry.

Figure 5.4 Share of employed persons below 35 years in ICT manufacturing industry and in Manufacturing industries total



In all the Nordic countries except Iceland, the share of young persons employed in ICT manufacturing is at least as large as the share in manufacturing industries in general, cf. figure 5.4, and in Sweden, and especially Finland, the share of young persons employed is much larger within ICT manufacturing compared to Manufacturing industries total.

Figure 5.5 Share of employed persons below 35 years in ICT services and Services activities total

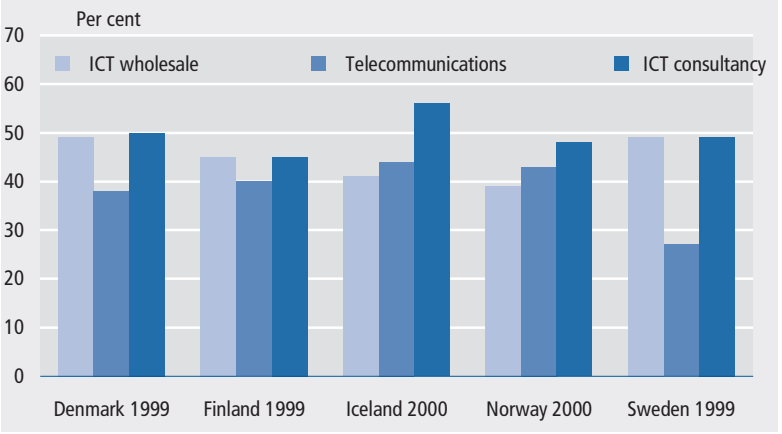


The Swedish ICT services sector accounts for 38% of the young persons employed in the ICT services sector of the Nordic countries, which is equal to its share of all persons employed in the ICT services sector. Compared to the relative size of the employment, Finland's share of young persons employed is relatively lower: Finland employ 16% of the persons below 35 years in ICT services on the Nordic level, but Finlands share of the overall employment in ICT services is 17%. For Denmark compared to Finland, the opposite situation applies, as the comparable figures are 26% and 21%, respectively.

Also in ICT services the share of young persons employed generally exceeds the services activities in general. On the national level Denmark is the only Nordic country with an equal share of young persons in ICT services and in Services activities in general.

Looking closer at the ICT services sub-sectors it is obvious that the relative shares of young persons employed are influenced significantly by the Telecommunications sector, whose share of young persons employed is only 36%, compared to shares of 46% in ICT wholesale and 49% in ICT consultancy services on the Nordic level. In Sweden this share is particularly low (27%). The highest shares of employed persons below 35 years in ICT wholesale services are found in Sweden and Denmark (49% each). ICT consultancy services in Iceland must be characterised as an activity strongly influenced by young persons, as the proportion of persons below 35 years is 56%, followed by Denmark and Sweden (50% and 49%, respectively).

Figure 5.6 Share of employed persons below 35 years in ICT services sub-sectors



5.3 Educational structure in the Nordic ICT sector

The demand for qualified persons with a high-level education is one of the main challenges for the ICT sector in recent years, and the educational structure of the employed persons is analysed in this sub-chapter. The common nomenclature used for this purpose is ISCED[24], which is developed by OECD. The educational levels refer to the public educational system, but it is important to notice that national differences in the educational systems complicate the comparability across the Nordic countries[25]. It is also important to notice that qualifications obtained by post-graduate education, courses, on-the-job-training or "learning-by-doing" is not captured in this sub-chapter.

The share of persons employed with *third level education*[26] is very high within both the ICT manufacturing industry and the ICT services sector, thus reflecting the knowledge-intensive character of this sector.

---

[22] Nordic Council of Ministers: Nordic Statistical Yearbook 2001

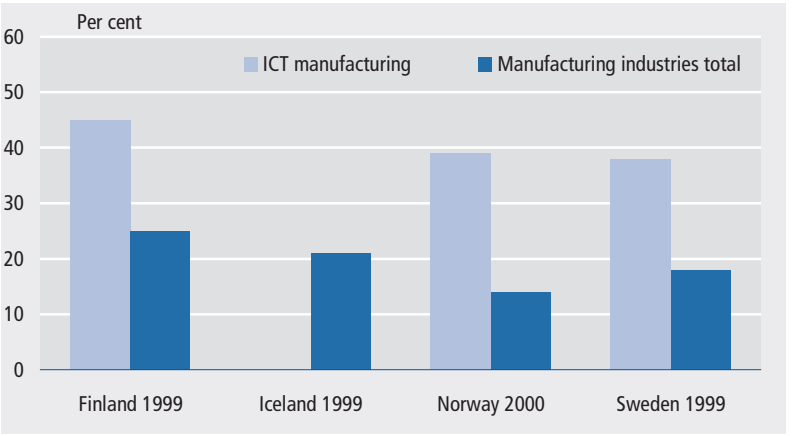
[23] See S. P. Bøegh Nielsen and S. Rikama: Employment Characteristics in Market Services Activities: Case Study of Denmark and Finland, paper presented at the Voorburg Group Meeting on Services Statistics 1997

[24] OECD: International Standard Classification of Education

[25] It has not been possible to provide educational data for Denmark on comparable basis.

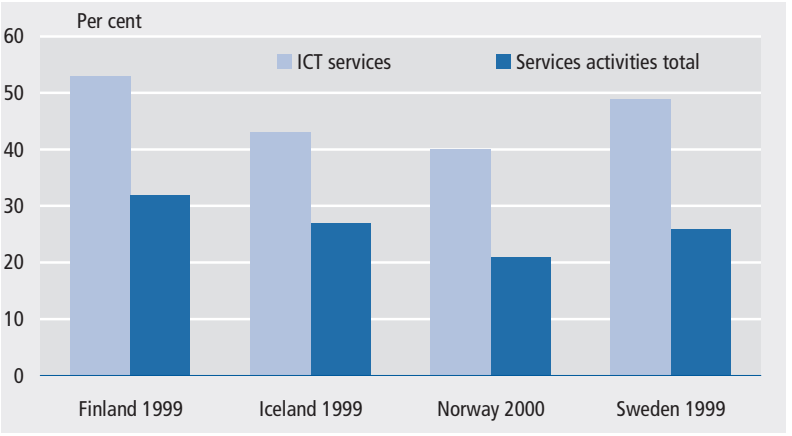
[26] See Annex I for further definition of educational levels.

Figure 5.7 Share of persons employed with third level education in ICT manufacturing and manufacturing industries



The share of persons employed with tertiary level education in *ICT manufacturing* is much higher than in the manufacturing industries in general in the Nordic countries except Iceland, cf. figure 5.7. The highest share of persons with tertiary education in both ICT manufacturing and manufacturing industries total is found in Finland (45% and 25%, respectively). In Norway and Sweden the share of persons with high-level education in ICT manufacturing is also high (39% and 38%), and especially in Norway the share of persons with third-level education is relatively higher than the manufacturing industries in general compared to Finland.

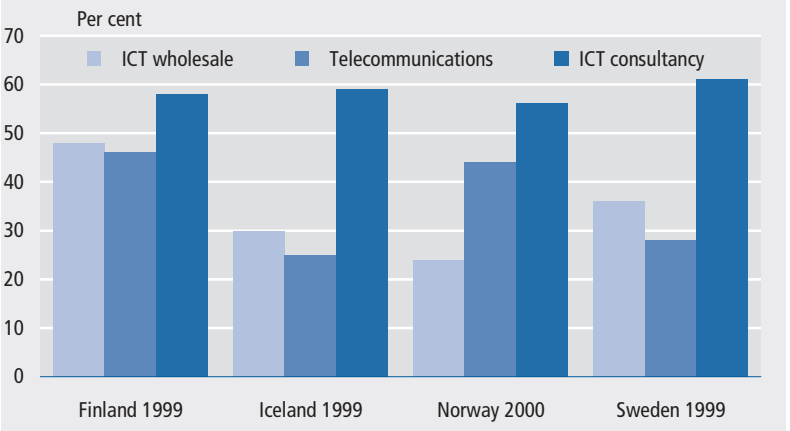
Figure 5.8 Share of persons employed in ICT services with third level education



The educational structure in *ICT services* and services activities in general is very similar to the structure of the manufacturing industries: Finland has the largest shares of persons with third-level education (53% and 32%, respectively), cf. figure 5.8. The shares of persons employed with third-level educations are higher in ICT services than within ICT manufacturing in all the countries, though in Norway the shares are very close (40% and 39%, respectively).

A more detailed look at the sub-sectors of ICT services reveals major differences, as the shares of persons with third-level education in all the countries are highest within *ICT consultancy services* with shares ranging from 56% in Norway as the lowest to 61% in Sweden as the highest, cf. figure 5.9.

Figure 5.9 Share of persons employed in ICT services with third level education



The Telecommunications sector show the largest variations concerning the shares of persons employed with third-level educations. In Iceland the share is 25%, whereas 46% of the persons employed within the Finnish and 44% of the persons employed within the Norwegian Telecommunications sector possess a third-level education. Only in Norway the relative share of employed persons with third-level education is higher within Telecommunications than within ICT wholesale.

6. Annex

The annex consists of three parts:

I Definitions:
ICT sector and ICT wholesale
ICT products
ICT services products and product consistency
ISCED levels of education

II Statistical tables

III List of data definitions and data sources used in this publication.

Annex I. Definition of ICT sector, wholesale and ICT products

Definition of ICT activities, based on NACE, rev.1 nomenclature

	ICT manufacturing industry:
3001	Manufacture of office machinery
3002	Manufacture of computers and other information processing equipment
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 line telephony and line telegraphy
3230	Manufacture of television and radio receivers, sound or video recording or reprodu-cing apparatus and associated goods
3320	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
3330	Manufacture of industrial process control equipment
	ICT services:
Wholesale	
5143	Wholesale of electrical house-hold appliances and radio and television goods
5164	Wholesale of office machinery and equipment
5165	Wholesale of other machinery for use in industry, trade and navigation
Telecommunications	
6420	Telecommunications
Consultancy services	
7133	Renting of office machinery and equip-ment, including computers
7210	Hardware consultancy
7220	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

Definition of wholesale activitites

Wholesale of electrical household appliances and radio and television goods

	Including:	Leaving out:
Denmark	Wholesale of radio and television goods	Wholesale of electrical household appliances Wholesale of grammophone records, recor-ded and unrecorded videos Wholesale of white goods
Finland	Wholesale of radio and television goods	Wholesale of electrical household appliances
Norway	Wholesale of radio and television goods	Wholesale of electrical household appliances Wholesale of grammophone records, recor-ded and unrecorded videos Wholesale, lightning equipment
Sweden	Wholesale of radio and television goods	Wholesale of electrical household appliances Wholesale of grammophone records, tapes, CDs and video tapes

Wholesale of office machinery and equipment

	Including	Leaving out
Denmark	Wholesale of office machinery, computers and equipment	Wholesale of office furniture and office supplies
Finland	Wholesale of computer hardware Wholesale of office Wholesale of machinery for industry, trade and navigation	Wholesale of office furniture
Iceland	Wholesale of computers, typewriters etc.	Wholesale of office equipment

Wholesale of other machinery for use in industry, trade and navigation

	Including:	Leaving out
Denmark	Wholesale of electrical materials	Wholesale of other machinery, equipment and accessories
	Wholesale of electronic components	
Finland	Wholesale of electrical equipment and supplies	Wholesale of machinery for industry, trade and navigation
	Wholesale of telecommunication equipment and electronic components	
Iceland	Wholesale of other machinery for use in industry, trade and navigation	Wholesale of fishing gear and fish-processing industry
Norway	Wholesale of machinery/equipment for trade, transport and services	Wholesale of machinery/equipment for power production
		Wholesale of equipment for ships and fishing gear
		Wholesale of machinery/equipment for oil, gas, quarrying
Sweden	Wholesale of computerized materials handling equipment	Wholesale of measuring and precision instruments
	Wholesale of telecommunication equipment and electronic components	Wholesale of machinery for industry, trade and navigation

Definition of ICT products by PRODCOM

Prodcom(98)	Description
	Telecommunications equipment
32201150	Radio/tv transmission apparatus without reception apparatus
32201170	Radio transmission apparatus with reception apparatus
32201290	Television cameras (incl. closed circuit TV cameras) (excl. camcorders)
32202020	Telephone sets (incl. line telephone sets with cordless handsets, videophones) (excl. telephone answering machines not an integral part of the set)
32202030	Teleprinters
32202040	Telephonic or telegraphic switching apparatus (excl. relays and switching equipment such as selectors for automatic telephone exchangers)
32202050	Telephonic/telegraphic apparatus for carrier-current line systems, n.e.c.
32202060	Electrical telephonic and telegraphic apparatus, n.e.c.
32202075	Facsimile machines
32305220	Telescopic and whip-type aerials for portable apparatus or for apparatus for fitting in motor vehicles
32305235	Outside aerials for radio or television reception via satellite (incl. rotor systems) (excl. aerial amplifiers and radio frequency oscillator units)
32305239	Outside aerials for radio or television reception (incl. rotor systems) (excl. for reception via satellite, aerial amplifiers and radio frequency oscillator units)
32305250	Inside aerials for radio or television reception (incl. built-in types) (excl. aerial amplifiers and radio frequency oscillator units)
32305270	Other aerials and parts
33202030	Radar apparatus
33202050	Radio navigational aid apparatus (incl. radio beacons and radio buoys, receivers, radio compasses equipped with multiple aerials or with a directional frame aerial)
33202070	Radio remote control apparatus (incl. for ships, pilotless aircraft, rockets, missiles, toys, and model ships or aircraft, for machines, for the detonation of mines)
33204400	Instruments and apparatus, for telecommunications
35304000	Spacecraft, satellites and launch vehicles
	Consumer electronics
24651000	Prepared unrecorded media for sound recording or similar recording (excl. photographic or cinematographic products)
32301155	Radio receivers, portable, sound recording or reproducing apparatus
32301159	Radio receivers, portable, n.e.c.
32301175	Radio receivers, with sound recording or reproducing apparatus
32301177	Other radio receivers not combined with sound recording or reproducing apparatus but combined with a clock
32301179	Radio receivers, n.e.c.
32301270	Radio receivers motor vehicles with sound recording or reproducing apparatus
32301290	Radio receivers for motor vehicles, n.e.c.
32302020	Colour television projection equipment and videoprojectors
32302030	Colour televisions with a video recorder or player
32302045	Colour video monitors with cathode-ray tube

32302049	Flat panel video monitor, LCD or plasma, etc., without tuner (colour video monitors) (excl. with cathode-ray tube)
32302050	Colour television receivers with integral tube (excl. television projection equipment, apparatus with a video recorder or player, video monitors)
32302060	Colour television receivers with other screens
32302075	Tuner blocks for CTV/VCR and cable TV receiver units (colour video tuners) (excl. those which isolate high-frequency television signals)
32302079	Satellite TV Receiver/Decoder (colour television receivers) (excl. with a screen, video tuners, video monitors, television projection equipment, with integral tube)
32302083	Black and white or other monochrome video monitors
32302085	Black and white or other monochrome television receivers (excl. video monitors)
32303135	Jukeboxes and the like (coin or disc-operated record-players)
32303139	Record-players and turntables (record decks) (excl. coin or disc-operated record-players)
32303150	Transcribing machines
32303175	Sound reproducing apparatus, cassette type, unable to record
32303179	Other sound reproducing apparatus
32303230	Dictating machines operated by an external source of power
32303250	Telephone answering machines with sound recording apparatus (excl. those forming an integral part of a telephone set)
32303275	Cassette recorders (cassette player/recorders) (incl. recording personal stereos) (excl. those combined with a radio or television receiver, dictating machines, etc.)
32303279	Other tape recorders (magnetic tape player/recorders) (excl. those combined with a radio or television receiver, dictating machines, telephone answering machines, cassette-type)
32303290	Sound recording apparatus (incl. digital disc audio recorders) (excl. dictating machines, telephone answering machines, magnetic tape player/recorders)
32303335	Electronic stills cameras and video camcorders (still image video cameras and other video camera recorders) (excl. closed circuit TV cameras)
32303339	Other video apparatus (+ video tuner) with tapes <= 1.3 cm, speed <= 50 mm/s
32303350	Other magnetic tape-types video apparatus (incl. or not video tuner)
32303370	Video recorders or player/recorders (incl. laser or digital video disc players/recorders) (excl. those combined with a television, for magnetic tape)
32304100	Microphones and their stands (excl. cordless microphones with a transmitter)
32304235	Single loudspeakers mounted in their enclosures (incl. frames or cabinets mainly designed for mounting loudspeakers)
32304237	Multiple loudspeakers mounted in the same enclosure (incl. frames or cabinets mainly designed for mounting loudspeakers)
32304239	Loudspeakers (incl. speaker drive units, frames or cabinets mainly designed for mounting loudspeakers) (excl. those mounted in their enclosures)
32304270	Headphones, earphones and combined microphone/speaker sets (excl. airmen's headgear with headphones, telephone sets, cordless microphones with a transmitter, hearing aids)
32304355	Telephonic and measurement amplifiers (excl. high or intermediate frequency amplifiers)
32304359	Audio-frequency electric amplifiers (incl. hi-fi amplifiers) (excl. high or intermediate frequency amplifiers, telephonic and measurement amplifiers)
32304370	Electric sound amplifier sets (incl. public address systems with microphone and speaker)
32304420	Portable receivers
32305130	Pick-up cartridges for discs or mechanically recorded sound films

	Computers
30021100	Analogue or hybrid automatic data processing machines
30021200	Laptop PCs and palm-top organisers
30021300	Desk top PCs
30021400	Digital data processing machines: presented in the form of systems
30021500	Other digital automatic data processing machines whether or not containing in the same housing 1 or 2 of the following units: storage units, input/output units
30021630	Printers and plotters
30021650	Keyboards and scanners
30021670	Input or output units whether or not containing storage units in the same housing (incl. mouses) (excl. printers, plotters, keyboards, scanners)
30021730	Central storage units
30021755	CD-ROM drives
30021757	Hard and floppy disk drives
30021770	Magnetic tape storage units
30021790	Storage units (excl. central storage units, disk storage units and magnetic tape storage units)
30021800	Other machines for processing data, n.e.c.
30021900	Parts & access. of machines of HS 8471, incl. parts & access. equally suitable for use with >= 2 machines of HS 8469 to 8472 (excl. mouses & hard disk drives)
	Electronic components
31301200	Insulated coaxial cables and other coaxial electric conductors for data and control purposes whether or not fitted with connectors
31301330	Electrics conductors used for telecommunications whether or not fitted with connectors, for a voltage <= 80 V
31301350	Other electric conductors for data & control purposes whether or not fitted with connectors, voltage <= 80 V
31301370	Insulated electric conductors whether or not fitted with connectors, for a voltage > 80 V but <= 1
31301500	Optical fibre cables made up of individually sheathed fibres whether or not assembled with electric conductors or fitted with connectors
32101100	Fixed power capacitors with a power handling capacity of > 0.5 kVAr
32101230	Fixed tantalum capacitors
32101250	Fixed aluminium capacitors
32101273	Fixed single layer ceramic capacitors
32101275	Fixed multilayer ceramic capacitors
32101277	Fixed metallised paper or plastic capacitors
32101279	Other fixed capacitors (excl. tantalum, aluminium, single or multilayer ceramic, metallised paper or plastic)
32101300	Variable capacitors (incl. pre-sets)
32102020	Fixed carbon or metal film resistors
32102035	Other fixed resistors for a power handling capacity <= 20 W (excl. heating resistors, light dependent resistors)
32102037	Other fixed electrical resistors for a power handling capacity > 20 W (excl. heating resistors, light dependent resistors)
32102055	Wirewound variable resistors for a power handling capacity <= 20 W
32102057	Wirewound variable resistors for a power handling capacity > 20 W
32102070	Non wirewound variable resistors (incl. rheostats, potentiometers and trimmers)

32103050	Bare multilayer printed circuit boards
32103070	Bare printed circuit boards other than multilayer
32103090	Passive networks (incl. networks of resistors and/or capacitors) (excl. resistor chip arrays, capacitor chip arrays, boards containing active components, hybrids)
32104135	Colour TV tubes
32104137	Black and white, monochrome TV tubes
32104139	Monitor tubes (with a phosphor dot screen pitch < 0.4 mm)
32104150	Television camera tubes, image converters and intensifiers and other photo-cathode tubes
32104200	Magnetrons, klystrons, microwave tubes, valves and tubes
32105120	Semiconductor diodes
32105130	Semiconductor power rectifier diodes
32105155	Semiconductor small signal transistors with a dissipation rate < 1 W
32105157	Semiconductor power transistors with a dissipation rate >= 1 W
32105170	Semiconductor thyristors, diacs and triacs
32105235	Semiconductor light emitting diodes (LEDs)
32105237	Photosensitive semiconductor devices; solar cells, photo-diodes, photo-transistors, etc.
32105250	Semiconductor devices (excl. photosensitive semiconductor devices, photovoltaic cells, thyristors, diacs and triacs, transistors, diodes, and light-emitting diodes)
32105270	Mounted piezo-electric crystals (incl. quartz, oscillator and resonators)
32106015	Digital MOS integrated circuits (ICs): wafers not yet cut into chips
32106017	Digital MOS integrated circuits (ICs): chips
32106025	Digital MOS integrated circuits (ICs), DRAM (incl. modules) with a capacity <= 4 Mbits
32106027	Digital MOS integrated circuits (ICs), DRAM (incl. modules) with a capacity > 4 Mbits
32106033	Digital MOS integrated circuits (ICs), SRAM (incl. modules) with a capacity <= 256 Kbits
32106035	Digital MOS integrated circuits (ICs), SRAM (incl. modules) with a capacity > 256 Kbits but <= 1 Mbit
32106037	Digital MOS integrated circuits (ICs), SRAM (incl. modules) with a capacity > 1 Mbit
32106053	MOS UV erasable, programmable, read only memories: EPROMs: storage cap. <= 1 Mbit
32106055	MOS UV erasable, programmable, read only memories: EPROMs: 1 Mbit < storage cap. <= 4 Mbit
32106057	MOS UV erasable, programmable, read only memories: EPROMs: storage cap. > 4 Mbit
32106065	Digital MOS integrated circuits (ICs) EEPROMS and flash EEPROMS
32106069	Digital MOS integrated circuits (ICs) memories (incl. ROM, FIFO, LILO (excl. circuits consisting solely of passive elements, DRAMS, SRAMS, Cache-RAMS, [E]EPROMS)
32106070	Digital MOS integrated circuits (ICs), (CPUs and MPUs)
32106093	Other digital MOS integrated circuits (ICs) (incl. MPR, MCU, ASIC, standard logic, PLD and other logic)
32106095	Linear (analogue) integrated circuits (ICs)
32106097	Hybrid integrated circuits (excl. circuits consisting solely of passive elements)
32106099	Electronic microassemblies (excl. circuits consisting solely of passive elements, assemblies formed by mounting one or more discrete components on a support)
	Office machinery
30011100	Word-processors (incl. automatic typewriters)
30011320	Calculating machines
30011350	Cash registers
30011370	Postage-franking machines, ticket-issuing machines and similar machines incorporating a calculating device

30011430	Parts and accessories of the machines of HS 8469
30011450	Parts and accessories of the electronic calculating of HS 8470
30012150	Blueprint and diazocopiers (excl. ordinary photographic printing frames)
30012170	Electrostatic photocopiers
30012190	Photocopiers incorporating an optical system, thermocopiers and contact type photocopiers (excl. electrostatic photocopiers, blueprinters and diazocopiers)
30012400	Parts and accessories of the machines of HS 8472
	Instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes
33201130	Direction finding compasses (incl. magnetic, gyroscopic, binnacle and position finding)
33201155	Instruments and appliances for aeronautical or space navigation (excl. compasses)
33201159	Instruments and appliances for navigation (incl. for marine or river navigation) (excl. for aeronautical or space navigation, compasses)
33201215	Electronic surveying and hydrographic instruments and appliances (incl. rangefinders, levels, theodolites and tacheometers, photogrammetrical instruments and appliances) (excl. comp
33201219	Other rangefinders, theodolites and tacheometers, levels, photogrammetrical applications
33201235	Other electronic instruments for meteorological purposes
33201239	Other electronic instruments, n.e.c.
33201253	Instruments and appliances used in geodesy, topography, surveying...
33201255	Other meteorological, hydrological and geophysical instruments and apparatus
33201257	Other surveying, hydrographic... geophysical instruments and appliances
33204100	Instruments and apparatus for measuring or detecting ionising radiations
33204200	Cathode-ray oscilloscopes and cathode-ray oscillographs
33204310	Multimeters
33204330	Instruments and apparatus, for measuring or checking voltage... : electronic
33204355	Voltmeters
33204359	Non-electronic instruments and apparatus, for measuring or checking voltage, current, resistance or power, without a recording device (excl. multimeters, voltmeters)
33204520	Instruments and apparatus for measuring or checking semiconductor wafers or devices
33204530	Instruments and apparatus, with a recording device, for measuring or checking electric gains (excl. gas, liquid or electricity supply or production meters)
33204555	Electronic instruments and apparatus, WITHOUT a recording device, for measuring or checking electric gains (excl. gas, liquid or electricity supply or production meters)
33204559	Non-electronic instruments and apparatus, without a recording device, for measuring or checking electrical gains (excl. multimeters, voltmeters)
33205150	Barometers, not combined with other instruments (incl. barometric altimeters, sympiesometers)
33205175	Electronic hydrometers, hygrometers and psychrometers
33205179	Hydrometers, pyrometers, hygrometers and psychrometers : others
33205271	Instruments... for measuring or checking pressure : electronic
33205273	Non-electronic spiral or metal diaphragm type pressure gauges for measuring and non-automatically regulating tyre pressure
33205275	Instruments for measuring or checking: spiral or metal diaphragm type pressure gauges, others
33205279	Other instruments for measuring or checking pressure: others
33205283	Other electronic instruments and apparatus
33205289	Non-electronic instruments for measuring or checking variables of liquids or gases (incl. heat meters) (excl. for measuring or checking pressure or the flow or level of liquids)
33205313	Electronic gas or smoke analysers

33205319	Non-electronic gas or smoke analysers
33205323	Chromatographs
33205329	Electrophoresis instruments
33205330	Spectrometers, spectrophotometers... using optical radiations
33205340	Exposure meters
33205350	Instruments and apparatus using optical radiations, n.e.c.
33205381	Electronic pH and rH meters and other apparatus for measuring conductivity
33205383	Other electronic instruments and apparatus
33205385	Viscometers, porosimeters and expansion meters
33205389	Other instruments and apparatus for physical and chemical analysis
33206100	Microscopes and diffraction apparatus (excl. optical microscopes)
33206210	Electronic machines and appliances for testing the mechanical properties of metals (excl. metallographic machines or appliances, instruments for detecting defects)
33206233	Non-electronic universal and tensile testing machines and appliances for metals
33206235	Non-electronic hardness testing machines and appliances for metals
33206239	Other machines and appliances for testing metals
33206255	Electronic machines and appliances for testing the properties of materials (excl. for metals)
33206259	Other machines and appliances for testing materials (excl. metals)
33206330	Gas supply or production meters (incl. calibrated)
33206350	Liquid supply or production meters (incl. calibrated) (excl. pumps)
33206370	Electricity supply or production meters (incl. calibrated) (excl. voltmeters, ammeters, wattmeters and the like)
33206430	Revolution counters, production counters, taximeters, mileometers
33206453	Vehicle speed indicators
33206455	Tachometers
33206470	Stroboscopes (incl. photographic or cinematographic cameras permanently incorporated in stroboscopes)
33206510	Machines for balancing mechanical parts
33206520	Test benches
33206530	Profile projectors
33206540	Optical instruments and appliances for measuring or checking, n.e.c.
33206550	Electronic instruments, appliances and machines for measuring or checking geometrical quantities (incl. comparators, coordinate measuring machines (CMMs))
33206570	Other electronic instruments, appliances,... for measuring or checking
33206583	Other instruments, appliances,... for measuring or checking geometrical quantities
33206589	Other instruments, appliances and machines for measuring or checking
33207015	Electronic thermostats
33207019	Non-electronic thermostats
33207030	Manostats
33207050	Hydraulic or pneumatic automatic regulating or controlling instruments and apparatus
33207090	Instruments and apparatus, regulating or controlling, n.e.c.
33208190	Parts and accessories, nes, for machines, appliances, etc, of HS 90
33402115	Image conductor cables
33402119	Optical fibres, optical fibre bundles and cables (excl. image conductor cables, optical fibre cables made up of individually sheathed fibres)
33402153	Prisms, mirrors and other optical elements, n.e.c.

33402155	Mounted lenses, prisms, mirrors, etc, of any material, n.e.c.
33402310	Telescopic sights for fitting to arms; periscopes; telescopes...
33402330	Lasers (excl. laser diodes, machines and appliances incorporating lasers)
33402355	Liquid crystal devices (incl. active matrix liquid crystal devices)
33402359	Optical devices, appliances and instruments, nes : others
33403250	Cameras of a kind used for recording documents on microfilm, microfiche or other microforms
33403270	Cameras for underwater use, for aerial survey or for medical or surgical examination of internal organs, comparison cameras for forensic or criminological purposes
33403390	Photographic apparatus (excl. still image video camera's)
33403430	Cinematographic cameras for film of a width < 16 mm or for double 8 mm film
33403450	Cinematographic cameras (excl. for film of a width < 16 mm wide or for double 8 mm film)
33403530	Cinematographic projectors

Definition of ICT services products

Product code	Description
P1	**Hardware consultancy services**
P2	**Software supply**
	of which:
P2a	Packaged software
P2b	Customized software
P2c	Computer consultancy services
P3	**Other computer services**
	of which:
P3a	Computer facilities management and data processing
P3b	Database services
P3c	Systems maintenance services
P3d	Computer hardware servicing, repair and maintenance of computing machinery and equipment
P4	**Network and telecommunications services**
P5	**IT-related training**
P6	**Leasing or rental services of computing machinery without operator**
P7	**Resale**
	of which:
P7a	Software (not own developed)
P7b	Hardware and equipment
P7c	Other computer services
P8	**Other services**

Product consistency

Product consistency is defined on basis of a combination of activity classification and services product turnover.

Activity classification	Description	Services product
72.1	Hardware consultancy services	P1
72.2	Software consultancy services	P2a+P2b+P2c+P3c
72.3	Data processing services	P3a
72.4	Database services	P3b
72.5	Repair and maintenance of computer machinery and equipment	P3d

ISCED levels of education[27]

	ISCED	ISCED97
ISCED 0:	Early childhood education.	Pre-primary level of education.
ISCED 1:	Primary level of education.	Primary level of education. .
ISCED 2:	Lower secondary level of education.	Lower secondary level of education.
ISCED 3:	Upper secondary level of education.	Upper secondary level of education.
ISCED 4:	-	Post-secondary non tertiary
ISCED 5:	Non-university level of education.	First stage of tertiary education
ISCED 6:	University degree level of education	Second stage of of tertiary education leading to an advandec research qualification
ISCED 7:	University degree level of education	-
ISCED 9:	No information	Level of unspecified or unknown

[27] As the main interest focuses on the higher levels of education, the categories 0, 1, 2 and 9 have been combined into one, which has also been done for the categories 5-7.

Annex II. Statistical tables

Table 1.1 Employment in the ICT sector

	ICT manufacturing industry	ICT services			Total ICT services	Total manufacturing industry	Total services activities	Total private sector*
		Wholesale	Telecommunications	Consultancy services				
	number of employees							
Denmark								
1993	18 325	21 237	12 698	21 166	55 101	390 917	458 251	965 504
1994	18 215	22 147	14 597	16 490	53 234	401 564	463 477	990 407
1995	19 104	23 617	14 567	17 332	55 516	415 283	482 060	1 028 023
1996	19 434	23 314	16 876	18 713	58 903	410 633	499 576	1 040 307
1997	19 358	25 092	15 242	20 280	60 614	407 589	511 475	1 055 983
1998	18 819	26 963	18 489	23 477	68 929	413 404	533 765	1 088 901
1999	21 087	27 478	19 306	28 370	75 154	407 636	554 120	1 106 741
Finland								
1994	24 374	11 682	15 354	13 910	40 946	376 127	529 725	985 548
1995	30 824	13 244	16 152	15 552	44 948	391 281	551 179	1 029 461
1996	33 588	14 437	16 489	16 623	47 549	397 392	567 455	1 060 494
1997	36 761	15 790	17 314	17 969	51 073	409 938	594 843	1 109 758
1998	40 084	16 105	18 639	22 292	57 036	417 721	623 317	1 159 352
1999	43 800	16 634	19 294	25 357	61 285	419 889	647 998	1 192 352
Iceland[1)]								
1998	126	1 091	1 214	1 155	3 460	25 398	50 893	84 208
1999	108	1 106	1 405	1 587	4 098	25 223	50 822	84 449
2000	104	1 258	1 591	2 139	4 988	25 128	57 608	91 695
Norway[2)]								
1995	9 641	33 147	10 271	15 375	58 793	299 700	902 200	1 304 400
1996	9 902	34 120	10 688	17 386	62 194	304 400	923 000	1 333 400
1997	10 597	32 049	10 996	23 060	66 105	317 400	954 100	1 386 700
1998	10 704	34 293	11 040	27 662	72 995	320 700	988 800	1 432 800
1999	11 569	36 202	11 300	32 071	79 573	312 000	999 700	1 434 800
Sweden								
1993	49 731	23 978	32 980	30 331	87 289	625 437	811 666	1 620 072
1994	51 768	24 970	33 121	32 481	90 572	636 294	877 638	1 689 411
1995	55 122	26 823	31 265	37 311	95 399	662 920	898 933	1 743 409
1996	55 919	27 451	34 655	42 776	104 882	675 339	919 271	1 772 136
1997	59 160	31 095	36 296	48 470	115 861	702 648	1 013 582	1 889 337
1998	65 761	32 636	33 056	57 066	122 758	720 843	1 063 876	1 960 404
1999	69 187	32 611	31 274	68 283	132 168	708 715	1 062 953	1 949 795

[1)] Iceland: Persons employed
[2)] Norway: Persons employed
* NACE 15_37, 45, 50-74, 92, 93

Table 1.2 Number of enterprises

		Denmark 1999	Finland 1999	Iceland 1999	Norway[28] 1999	Sweden 1999
ICT manufacturing industry, total		874	689	26	213	1 361
3001	Manufacture of office machinery	10	4	0	3	49
3002	Manufacture of computers and other information processing equipment	176	58	1	14	282
3130	Manufacture of insulated wire and cable	33	32	0	22	61
3210	Manufacture of electronic valves and tubes and other electronic components	143	208	2	44	238
3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy	46	65	6	20	112
3230	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus	142	47	2	16	114
3320	Manufacture of instruments and appliances for measuring, checking, testing, navigating etc.equipment	210	207	13	76	379
3330	Manufacture of industrial process control equipment	114	68	2	18	126
ICT services activities, total		13 258	5 427	440	10 767	15 322
of which:						
Wholesale of ICT products:		2 618	1 719	192	5 147	3 873
5143	Wholesale of electrical household appliances and radio and television goods	240	299	24	506	1 147
5164	Wholesale of office machinery and equipment	1 623	1 069	28	2 066	2 399
5165	Wholesale of other machinery for use in industry, trade and navigation	755	2 213	140	2 575	4 700
Telecommunications:		184	220	13	259	222
6420	Telecommunications	184	220	13	259	222
Consultancy services, renting of machinery:		10 456	3 488	235	5 361	11 227
7133	Renting of office machinery and equipment, including computers	298	25	0	52	178
7210	Hardware consultancy	528	238	10	105	541
7220	Software consultancy and supply	7 520	2 630	183	4 124	9 616
7230	Data processing	908	200	9	258	426
7240	Database activities	218	152	3	504	99
7250	Maintenance and repair of office, accounting and computing machinery	329	225	8	199	169
7260	Other computer related activities	655	18	22	119	198
Manufacturing industry		27 211	25 715	1 983	n.a.	32 647
Services activities		165 457	130 506	6 685	n.a.	201 095
Total private sector*		233 593	195 249	10 912	n.a.	263 258

Note) ICT wholesale figures are based on national delineation of ICT wholesale, cf. also Annex 1.
* NACE 15-37, 45, 50-74, 92, 93

[28] Norway: Establishments

Table 1.3 Turnover in mill. national currencies

	ICT manufacturing industry	ICT services			Total ICT services	Total manufacturing industry	Total services activities	Total private sector*
		Wholesale	Tele communications	Consultancy services				
	turnover, mill. national currencies							
Denmark								
1993	16 314	45 823	16 941	14 565	77 329	418 298	818 780	1 324 474
1994	17 128	55 599	19 943	17 267	92 809	455 858	895 292	1 449 220
1995	17 169	59 722	21 210	20 115	101 047	474 138	944 924	1 523 667
1996	18 883	66 696	20 481	18 450	105 627	468 919	981 473	1 563 957
1997	20 252	76 617	22 849	24 488	123 954	488 258	1 055 165	1 666 537
1998	21 070	85 842	25 869	30 680	142 391	495 368	1 100 347	1 725 946
1999	24 336	84 694	26 220	36 678	147 592	503 100	1 146 000	1 787 000
Finland								
1994	25 925	19 678	9 649	8 326	37 654	351 267	470 063	866 500
1995	34 191	24 667	10 563	9 043	44 272	379 959	503 455	933 586
1996	40 168	30 211	12 719	10 263	53 193	397 514	545 188	997 751
1997	53 057	36 390	15 518	10 736	62 644	448 899	602 880	1 114 939
1998	71 784	39 653	20 448	16 026	76 127	470 063	657 895	1 200 527
1999	97 861	43 215	21 870	17 756	82 841	496 371	701 647	1 280 305
Iceland								
1998	886	19 266	12 326	7 609	39 201	247 783	508 726	820 795
1999	983	19 804	15 447	13 184	48 435	255 529	571 659	896 377
Norway								
1995	13 356	86 782	31 506	15 620	133 908	366 194	1 114 287	1 582 038
1996	14 977	92 159	35 172	18 079	145 410	385 025	1 185 237	1 680 253
1997	16 864	97 850	40 484	24 216	162 550	421 646	1 290 169	1 834 114
1998	17 145	108 510	45 024	30 534	184 068	440 873	1 368 652	1 942 570
1999	20 690	111 411	48 785	36 462	196 658	436 891	1 423 618	1 992 435
Sweden								
1993	61 159	62 296	23 249	31 878	117 424	799 925	1 374 151	2 354 685
1994	84 877	71 595	48 420	40 289	160 304	948 548	1 551 646	2 678 677
1995	105 038	100 656	52 288	46 258	199 201	1 103 045	1 753 572	3 040 641
1996	122 676	98 326	47 835	51 743	197 904	1 106 880	1 771 619	3 065 726
1997	143 232	112 504	55 498	57 290	225 292	1 184 118	2 001 014	3 364 775
1998	169 634	131 311	64 179	72 156	267 645	1 261 757	2 127 743	3 572 954
1999	197 362	132 326	66 459	91 271	290 056	1 313 969	2 260 363	3 773 316

* NACE 15-37, 45, 50-74, 92, 93

Table 1.4 Gross value added in mill. national currencies

	ICT manufacturing industry	ICT services			Total ICT services	Total manufacturing industry	Total services activities	Total private sector*
		Wholesale	Telecommunications	Consultancy services				
	gross value added, mill. national currencies							
Denmark								
1993	8 004	12 657	n a	9 385	22 042	177 908	256 698	475 801
1994	8 482	13 910	n a	10 741	24 651	190 718	265 464	501 354
1995	8 675	15 500	n a	12 513	28 013	201 023	280 562	529 852
1996	8 856	15 924	n a	12 531	28 455	198 836	298 667	548 069
1997	9 970	18 363	n a	17 134	35 497	211 304	306 286	573 450
1998	10 113	20 276	n a	20 293	40 569	216 626	319 505	595 999
1999	10 461	18 544	n a	20 886	39 430	224 303	337 820	626 283
Finland[1)]								
1997	17 529	5 471	8 277	5 804	19 552	143 089	144 408	310 416
1998	24 643	5 906	9 748	7 721	23 374	156 399	161 289	343 906
1999	30 120	6 211	11 216	8 897	26 324	154 969	163 068	345 908
Norway								
1995	4 528	n.a.	10 658	n.a.	n.a.	111 072	321 043	463 915
1996	4 923	13 101	11 648	8 592	33 341	111 736	340 279	486 414
1997	5 445	16 236	12 184	10 011	38 431	120 782	366 762	527 516
1998	5 654	17 359	13 463	12 205	43 027	130 633	396 056	571 246
1999	7 322	17 960	14 552	16 053	48 565	129 687	408 771	584 601
Sweden								
1993	19 344	11 691	16 353	13 964	42 008	243 065	280 657	578 916
1994	23 591	13 704	21 991	16 078	51 773	289 245	328 598	672 182
1995	26 892	15 896	20 709	19 528	56 133	329 877	351 735	741 968
1996	29 131	14 906	24 746	22 750	62 399	313 861	366 179	741 594
1997	41 822	17 621	28 694	27 356	73 671	358 862	487 213	906 742
1998	41 606	19 152	27 922	33 821	80 896	387 175	528 887	985 802
1999	45 662	19 885	32 519	41 639	94 043	394 033	560 279	1 033 802

[1)] Value added at factor costs

* NACE 15-37, 45, 50-74, 92, 93

Table 1.5 Wages and salaries in mill. national currencies

	ICT manufacturing industry	ICT services			Total ICT services	Total manufacturing industry	Total services activities	Total private sector*
		Wholesale	Telecommunications	Consultancy services				
	wages and salaries, mill. national currencies							
Denmark								
1993	4 523	6 512	3 037	6 998	16 547	90 088	107 278	222 498
1994	4 564	7 012	3 612	5 600	16 224	94 934	112 678	235 578
1995	4 831	7 548	3 703	5 967	17 218	100 611	119 354	249 631
1996	5 022	7 608	4 671	6 612	18 891	102 533	127 494	259 967
1997	5 113	8 539	5 190	7 435	21 164	105 084	135 377	272 782
1998	5 415	9 631	5 759	9 156	24 546	109 850	146 511	290 724
1999	5 954	10 208	6 133	11 501	27 842	112 200	157 200	305 800
Finland								
1994	3 204	2 024	2 233	2 364	6 621	48 840	62 428	118 787
1995	4 108	2 319	2 329	2 521	7 168	53 769	66 118	128 811
1996	4 739	2 589	2 511	2 760	7 860	56 358	69 940	136 177
1997	5 712	2 927	2 797	3 043	8 766	60 226	75 018	146 368
1998	6 794	3 123	3 098	4 349	10 570	64 738	82 485	160 131
1999	7 843	3 500	3 145	5 219	11 864	66 184	88 703	169 498
Iceland								
1998	252	2 588	2 750	3 398	8 735	45 445	91 333	152 861
1999	260	2 928	3 791	5 534	12 254	52 365	113 643	185 310
2000	251	3 320	4 128	7 497	14 946	54 107	122 939	198 957
Norway								
1995	3 289	9 901	3 584	5 578	19 063	75 780	188 515	286 500
1996	3 701	10 453	4 044	6 203	20 699	79 788	202 661	306 595
1997	4 005	11 425	4 603	8 636	24 663	86 884	220 375	336 155
1998	4 149	12 621	4 992	11 482	29 095	93 443	244 286	371 391
1999	5 035	13 514	5 351	13 742	32 607	96 406	261 197	393 756
Sweden								
1993	10 286	6 113	7 824	7 833	21 770	121 441	150 270	304 364
1994	11 338	6 711	7 708	8 713	23 132	128 991	166 988	327 682
1995	12 941	7 135	7 632	10 484	25 251	143 015	179 871	356 833
1996	14 164	7 438	9 374	12 484	29 296	153 685	192 410	380 903
1997	15 800	8 715	8 700	14 819	32 234	165 767	220 028	420 569
1998	18 504	9 898	9 768	18 977	38 643	175 190	245 549	458 347
1999	19 847	10 425	9 821	23 600	43 846	177 856	257 975	476 676

* NACE 15-37, 45, 50-74, 92, 93

Table 2.1 Turnover of ICT consultancy services distributed by products and services. Denmark 2000

		72.1 Hard ware consul tancy	72.2 Software consul-tancy and supply	72.3 Data proces-sing	72.4 Database activities	72.5 Mainte-nance and re-pair of compu-ters etc.	72.6 Other computer related activities	Total
P1	**Hardware consultancy services**	11	5	2	2	4	3	5
P2	**Software supply**	21	56	27	20	0	68	51
	of which:							
P2a	Packaged software	3	11	2	0	0	2	9
P2b	Customized software	11	33	22	15	0	62	32
P2c	Computer consultancy services	7	12	2	5	0	4	11
P3	**Other computer services**	18	17	61	49	69	15	22
	of which:							
P3a	Computer facilities management and data processing	9	10	54	6	0	8	13
P3b	Database services	1	1	4	38	0	4	2
P3c	Systems maintenance services	6	6	3	3	5	3	5
P3d	Computer hardware servicing, repair and maintenance of computing machinery and equipment	2	1	0	2	64	0	1
P4	**Network and telecommunications services**	2	4	3	21	0	6	4
P5	**IT-related training**	1	3	1	0	0	1	3
P6	**Leasing or rental services of computing machinery without operator**	1	0	0	1	0	0	0
P7	**Resale**	44	12	3	3	12	3	12
	of which:							
P7a	Software (not own developed)	6	7	1	0	0	2	6
P7b	Hardware and equipment	38	6	1	3	12	1	6
P7c	Other resale	0	0	0	0	0	0	0
P8	**Others**	3	2	4	5	15	4	3
	Total	100	100	100	100	100	100	100

Table 2.2 Turnover of ICT consultancy services distributed by activity, products and services. Denmark 2000

		72.1 Hard ware consul tancy	72.2 Software consul-tancy and supply	72.3 Data proces-sing	72.4 Database activities	72.5 Mainte-nance and re-pair of compu-ters etc.	72.6 Other computer related activities	Total
P1	**Hardware consultancy services**	7	85	3	1	1	3	100
P2	**Software supply**	1	87	4	1	0	7	100
	of which:							
P2a	Packaged software	1	96	2	0	0	1	100
P2b	Customized software	1	82	6	1	0	10	100
P2c	Computer consultancy services	2	93	2	1	0	2	100
P3	**Other computer services**	2	63	24	5	3	3	100
	of which:							
P3a	Computer facilities management and data processing	2	59	35	1	0	3	100
P3b	Database services	1	35	16	39	0	9	100
P3c	Systems maintenance services	3	88	4	1	1	3	100
P3d	Computer hardware servicing, repair and maintenance of computing machinery and equipment	5	37	3	3	52	0	100
P4	**Network and telecommunications services**	1	77	5	10	0	7	100
P5	**IT-related training**	1	94	3	0	0	2	100
P6	**Leasing or rental services of computing machinery without operator**	11	69	15	5	0	0	100
P7	**Resale**	11	84	2	1	1	1	100
	of which:							
P7a	Software (not own developed)	3	93	2	0	0	2	100
P7b	Hardware and equipment	18	76	2	1	2	1	100
P7c	Other resale							0
P8	**Others**	3	65	14	4	6	8	100
	Total	3	80	9	2	1	5	100

Table 2.3 Turnover of ICT consultancy services distributed by products and services. Finland 2000[29]

		72.2 Software consul-tancy and supply	72.3 Data proces-sing	72.4 Database activities	72.5 Mainte-nance and repair of computers etc.	Total
P1	**Hardware consultancy services**	2	3	1	0	2
P2	**Software supply**	61	49	18	8	53
	of which:					
P2a	Packaged software	22	13	2	0	18
P2b	Customized software	26	30	12	3	25
P2c	Computer consultancy services	13	5	4	5	10
P3	**Other computer services**	17	32	18	57	22
	of which:					
P3a	Computer facilities management and data processing	4	21	0	0	8
P3b	Database services	1	2	16	0	2
P3c	Systems maintenance services	8	5	2	15	7
P3d	Computer hardware servicing, repair and maintenance of computing machinery and equipment	4	4	1	42	5
P4	**Network and telecommunications services**	2	7	52	0	7
P5	**IT-related training**	1	3	2	0	2
P6	**Leasing or rental services of computing machinery without operator**	0	0	0	0	0
P7	**Resale**	12	1	5	34	10
	of which:					
P7a	Software (not own developed)	3	0	1	8	2
P7b	Hardware and equipment	9	0	4	25	7
P7c	Other resale	0	0	0	0	0
P8	**Others**	5	6	3	1	5
	Total	100	100	100	100	100

[29] Based on preliminary figures

Table 2.4 Turnover of ICT consultancy services distributed by activity, products and services. Finland 2000[30]

		72.2 Software consul-tancy and supply	72.3 Data proces-sing	72.4 Database activities	72.5 Mainte-nance and repair of computers etc.	Total
P1	**Hardware consultancy services**	64	33	3	0	100
P2	**Software supply**	75	22	2	0	100
	of which:					
P2a	Packaged software	81	18	1	0	100
P2b	Customized software	67	29	4	0	100
P2c	Computer consultancy services	83	13	3	1	100
P3	**Other computer services**	50	36	6	8	100
	of which:					
P3a	Computer facilities management and data processing	33	67	0	0	100
P3b	Database services	24	21	55	0	100
P3c	Systems maintenance services	74	17	2	6	100
P3d	Computer hardware servicing, repair and maintenance of computing machinery and equipment	51	20	1	28	100
P4	**Network and telecommunications services**	17	25	58	0	100
P5	**IT-related training**	48	43	9	0	100
P6	**Leasing or rental services of computing machinery without operator**	55	42	3	0	100
P7	**Resale**	83	2	4	11	100
	of which:					
P7a	Software (not own developed)	80	5	3	12	100
P7b	Hardware and equipment	84	1	4	11	100
P7c	Other resale	74	16	8	2	100
P8	**Others**	67	28	5	1	100
	Total	65	24	7	3	100

[30] Based on preliminary figures

Table 2.5 Turnover of ICT consultancy services distributed by products and services. Sweden 1999

		72.1 Hard ware consul tancy	72.2 Software consul-tancy and supply	72.3 Data proces-sing	72.4 Database activities	72.5 Mainte-nance and re-pair of compu-ters etc.	72.6 Other computer related activities	Total
P1	**Hardware consultancy services**	3	1	2	12	6	17	2
P2	**Software supply**	28	73	21	29	11	26	63
	of which:							
P2a +b	Packaged and customized software	22	57	18	6	0	19	49
P2c	Computer consultancy services	6	16	3	23	11	7	14
P3	**Other computer services**	10	12	34	56	48	15	16
	of which:							
P3a1	Computer facilities mana-gement / data processing	3	3	7	3	0	0	3
P3a2	Data processing services	0	4	11	4	0	0	5
P3b	Database services	0	0	5	43	0	4	1
P3c	Systems maintenance services	2	3	7	0	1	3	4
P3d	Computer hardware servicing, repair /mainte-nance of computers etc.	1	0	5	0	47	3	3
P3e	Other comp. based act.	2	1	0	6	0	6	1
P4	**Network and telecom-munications services**	7	3	7	1	1	0	4
P5	**IT-related training**	4	1	2	0	0	2	1
P6	**Leasing or rental servi-ces of computing machi nery without operator**	1	1	2	0	0	2	1
P7	**Resale**	43	7	31	1	34	34	12
	of which:							
P7a	Software (not own developed)	11	3	7	1	0	22	4
P7b	Hardware and equipment	30	3	24	0	29	13	7
P7c	Other resale	2	1	0	0	4	0	1
P8	**Others**	6	2	0	0	0	3	2
	of which:							
P8a	Business and management consultancy services	0	1	0	0	0	0	0
P8b	Other services n.e.c.	0	0	0	0	0	0	0
P8c	Manufacturing of compu-ters /data processing eqipment	5	1	0	0	0	2	1
P8d	Other manufacturing	0	0	0	0	0	2	0
	Total	100	100	100	100	100	100	100

Table 2.6 Turnover of ICT consultancy services distributed by activity, products and services. Sweden 1999

		72.1 Hard ware consul tancy	72.2 Software consul-tancy and supply	72.3 Data proces-sing	72.4 Database activities	72.5 Mainte-nance and re-pair of compu-ters etc.	72.6 Other computer related activities	Total
P1	**Hardware consultancy services**	3	51	14	10	11	11	100
P2	**Software supply**	1	94	4	1	1	0	100
	of which:							
P2a +b	Packaged and customized software	1	94	4	0	0	0	100
P2c	Computer consultancy services	1	91	3	2	2	1	100
P3	**Other computer services**	1	59	25	5	10	1	100
	of which:							
P3a1	Computer facilities mana-gement / data proces-sing	2	71	25	1	0	0	100
P3a2	Data processing services	0	73	25	1	0	0	100
P3b	Database services	1	14	39	43	0	3	100
P3c	Systems maintenance services	1	76	20	0	1	1	100
P3d	Computer hardware servicing, repair /mainte-nance of computers etc.	1	16	21	0	60	1	100
P3e	Other comp based act.	7	72	0	11	0	10	100
P4	**Network and telecom-munications services**	4	75	20	1	1	0	100
P5	**IT-related training**	6	75	17	0	0	2	100
P6	**Leasing or rental servi-ces of computing machi nery without operator**	1	78	19	0	0	3	100
P7	**Resale**	8	49	30	0	9	4	100
	of which:							
P7a	Software (not own developed)	7	65	21	0	0	7	100
P7b	Hardware and equipment	9	39	38	0	13	2	100
P7c	Other resale	5	70	7	0	18	0	100
P8	**Others**	7	82	2	3	1	5	100
	of which:							
P8a	Business and management consultancy services	0	97	1	0	1	1	100
P8b	Other services n.e.c.	3	82	13	0	2	0	100
P8c	Manufacturing of compu-ters /data processing eqipment	18	79	0	0	0	3	100
P8d	Other manufacturing	2	91	1	0	1	5	100
	Total	2	81	11	1	3	1	100

Table 3.1 ICT products as a proportion of total exports in 1996-2000

	1996	1997	1998	1999	2000
Denmark	7.2	8.1	8.6	9.0	9.7
Finland	14.3	16.5	19.8	22.1	25.2
Iceland	0.1	0.1	0.1	0.1	0.2
Norway	2.9	3.1	4.0	3.5	2.6
Sweden	14.3	16.0	16.3	18.5	19.8

Table 3.2 ICT products as a proportion of total imports in 1996-2000

	1996	1997	1998	1999	2000
Denmark	12.2	12.4	11.9	13.3	13.8
Finland	14.2	15.0	16.3	16.8	18.9
Iceland	9.0	9.3	9.6	9.9	11.5
Norway	10.8	10.3	10.5	11.2	11.3
Sweden	14.3	15.1	16.5	15.9	17.4

Table 3.3.a Foreign trade in ICT products in 1996-2000, in 1.000 national currency

		Denmark	Finland	Iceland	Norway	Sweden
1996	Exports	21 367 455	26 690 483	88 718	9 222 011	81 270 644
	Imports	31 859 884	20 066 254	11 294 745	22 568 741	64 126 461
1997	Exports	26 140 103	35 208 076	138 328	10 774 531	100 943 443
	Imports	36 504 279	24 158 899	12 209 995	25 860 129	75 914 967
1998	Exports	27 835 798	45 596 762	182 913	12 279 574	110 215 596
	Imports	36 791 563	28 218 494	15 564 607	29 608 335	89 826 051
1999	Exports	31 067 239	51 607 861	181 064	12 537 656	129 759 137
	Imports	41 560 631	29 619 280	16 562 389	29 987 051	90 235 051
2000	Exports	38 761 377	73 985 599	363 929	13 934 794	157 555 507
	Imports	49 623 580	41 176 522	21 576 843	34 987 051	115 893 320

Table 3.3.b Foreign trade in ICT products in 1996-2000, in 1.000 national currency

	Exports/imports				
	1996	1997	1998	1999	2000
Denmark	0.7	0.7	0.8	0.7	0.8
Finland	1.3	1.5	1.6	1.7	1.8
Iceland	0.0	0.0	0.0	0.0	0.0
Norway	0.4	0.4	0.4	0.4	0.4
Sweden	1.3	1.3	1.2	1.4	1.4

Table 3.3.c Foreign trade in ICT products, 1996-2000, in 1000 ECU and Euro (mean value of the year)

		Denmark	Finland	Iceland	Norway	Sweden
1996	Exports	2 942 203	4 641 016	1 062	1 124 635	9 675 537
	Imports	4 386 964	3 489 176	135 202	2 752 285	7 634 466
	Exports/ imports	0.67	1.33	0.01	0.37	1.27
1997	Exports	3 502 814	6 004 106	1 725	1 345 135	11 676 714
	Imports	4 891 630	4 119 867	152 282	3 228 481	8 781 525
	Exports/ imports	0.72	1.46	0.01	0.42	1.33
1998	Exports	3 704 673	7 607 067	2 290	1 453 204	12 343 775
	Imports	4 896 597	4 707 790	194 874	3 503 945	10 060 215
	Exports/ imports	0.76	1.62	0.01	0.41	1.23
1999	Exports	4 178 175	8 679 819	2 347	1 508 743	14 732 290
	Imports	5 589 412	4 981 605	214 650	3 608 550	10 236 684
	Exports/ imports	0.74	1.74	0.01	0.42	1.44
2000	Exports	5 212 945	12 443 484	4 997	1 718 033	18 653 348
	Imports	6 673 783	6 925 394	296 263	4 225 354	13 720 869
	Exports/ imports	0.78	1.80	0.02	0.41	1.36

Table 3.4.a Growth rate of foreign trade in ICT products, 1996-2000, in 1000 ECU and Euro (mean value of the year)

	Exports growth in per cent					Imports growth in per cent				
	96-97	97-98	98-99	99-00	96-00	96-97	97-98	98-99	99-00	96-00
Denmark	19.1	5.8	12.8	24.8	77.2	11.5	0.1	14.1	19.4	52.1
Finland	29.4	26.7	14.1	43.4	168.1	18.1	14.3	5.8	39.0	98.5
Iceland	62.4	32.8	2.5	112.9	370.5	12.6	28.0	10.1	38.0	119.1
Norway	19.6	8.0	3.8	13.9	52.8	17.3	8.5	3.0	17.1	53.5
Sweden	20.7	5.7	19.3	26.6	92.8	15.0	14.6	1.8	34.0	79.7

Table 3.4.b Growth rate of foreign trade in ICT products, 1996-2000, in 1000 ECU and Euro (mean value of the year)

	Exports growth in per cent	Imports growth in per cent	Exchange rate for ECU and Euro				
	1996-2000	1996-2000	1996	1997	1998	1999	2000
Denmark	77.2	52.1	7.26240	7.46260	7.51370	7.43560	0.43560
Finland	168.1	98.5	5.75100	5.86400	5.99400	5.94573	5 94573
Iceland	370.5	119.1	83.54000	80.18000	79.87000	77.16000	72.83000
Norway	52.8	53.5	8.20000	8.01000	8.45000	8.31000	8.11090
Sweden	92.8	79.7	8.39960	8.64485	8.92884	8.80764	8.44650

Table 3.5.a ICT exports and imports in 1996-2000 by product groups. Denmark

Product class	1996	1997	1998	1999	2000
	1.000 DKK				
Telecommunications equipment					
Exports	5 005 595	7 430 994	9 351 875	10 863 206	12 883 164
Imports	6 083 704	7 670 278	9 355 242	10 854 026	14 628 859
Balance	-1 078 109	- 239 284	- 3 367	9 180	- 1 745 695
Consumer electronics					
Exports	4 275 310	4 878 088	4 791 530	4 792 852	5 533 939
Imports	5 233 109	5 491 780	5 065 774	4 921 647	5 238 444
Balance	- 957 799	- 613 692	- 274 244	- 128 795	295 495
Computers					
Exports	5 809 923	6 187 727	5 777 722	6 465 645	7 839 829
Imports	13 598 451	14 736 243	12 895 007	16 685 345	17 356 776
Balance	-7 788 528	-8 548 516	-7 117 285	-10 219 700	- 9 516 947
Electronic components					
Exports	1 969 282	2 609 603	2 644 342	2 560 875	3 888 746
Imports	3 589 807	4 651 413	5 309 579	4 867 800	7 674 139
Balance	-1 620 525	-2 041 810	-2 665 237	-2 306 925	- 3 785 393
Office machinery					
Exports	284 461	299 268	319 897	347 813	592 753
Imports	1 066 435	1 279 822	1 361 613	1 358 997	1 195 637
Balance	- 781 974	- 980 554	-1 041 716	-1 011 184	- 602 884
Instruments for measuring etc.[31]					
Exports	4 022 884	4 734 423	4 950 432	5 606 079	8 022 946
Imports	2 288 378	2 674 743	2 804 348	2 881 408	3 529 725
Balance	1 734 506	2 059 680	2 146 084	2 724 671	4 493 221
ICT Foreign trade, total					
Exports	21 367 455	26 140 103	27 835 798	30 636 470	38 761 377
Imports	31 859 884	36 504 279	36 791 563	41 569 223	49 623 580
Balance	-10 492 429	-10 364 176	-8 955 765	-10 932 753	- 10 862 203
Foreign trade, total					
Exports	295 884 500	321 185 500	322 797 100	346 438 400	397 824 000
Imports	260 847 800	293 522 100	308 816 800	311 583 400	359 612 000
Balance	35 036 700	27 663 400	13 980 300	34 855 000	38 212 000

[31] Instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes

Table 3.5.b ICT exports and imports in 1996-2000 by product groups. Finland

Product class	1996	1997	1998	1999	2000
	1.000 FIM				
Telecommunications equipment					
Export	17 917 169	23 630 715	32 837 466	39 627 617	62 465 480
Import	3 392 226	4 024 477	5 137 828	6 365 232	13 690 414
Balance	14 524 943	19 606 238	27 699 638	33 262 385	48 775 066
Consumer electronics					
Export	945 904	1 304 934	1 340 923	722 539	680 144
Import	1 456 454	1 493 226	2 026 829	2 053 194	2 815 709
Balance	- 510 550	- 188 292	- 685 906	-1 330 655	- 2 135 565
Computers					
Export	4 472 570	5 800 503	5 458 540	4 763 851	2 521 789
Import	6 288 652	7 544 368	9 131 577	8 987 769	8 275 566
Balance	-1 816 082	-1 743 865	-3 673 037	-4 223 918	- 5 753 777
Electronic components					
Export	1 042 739	1 382 933	2 520 652	2 745 106	4 065 476
Import	6 279 498	8 030 331	8 681 646	8 972 037	12 930 433
Balance	-5 236 759	-6 647 398	-6 160 994	-6 226 931	- 8 864 957
Office machinery					
Export	112 552	159 159	221 744	136 838	112 593
Import	546 561	726 250	809 874	828 700	718 685
Balance	- 434 009	- 567 091	- 588 130	- 691 862	- 606 092
Instruments for measuring etc.[32]					
Export	2 199 549	2 929 832	3 217 437	3 611 910	4 140 117
Import	2 102 863	2 340 247	2 430 740	2 412 348	2 745 715
Balance	96 686	589 585	786 697	1 199 562	1 394 402
ICT foreign trade, total					
Export	26 690 483	35 208 076	45 596 762	51 607 861	73 985 599
Import	20 066 254	24 158 899	28 218 494	29 619 280	41 176 522
Balance	6 624 229	11 049 177	17 378 268	21 988 581	32 809 077
Foreign trade, total					
Export	186 334 206	212 840 366	230 568 673	233 343 286	293 643 207
Import	141 719 878	160 994 651	172 819 152	176 535 604	218 152 507
Balance	44 614 328	51 845 715	57 749 521	56 807 682	75 490 700

[32] Instruments and equipment for detecting, measuring,checking and controlling physical phenomena or processes

Table 3.5.c ICT exports and imports in 1996-2000 by product groups. Iceland

Product class	1996	1997	1998	1999	2000
	1.000 ISK				
Telecommunications equipment					
Exports	661	2 826	8 127	29 034	56 962
Imports	2 410 679	2 805 639	3 732 592	4 012 184	5 809 547
Balance	-2 410 018	-2 802 813	-3 724 465	-3 983 150	- 5 752 585
Consumer electronics					
Exports	2 216	1 946	4 590	6 290	14 481
Imports	1 818 869	1 995 199	2 644 423	2 708 536	3 273 907
Balance	-1 816 653	-1 993 254	-2 639 833	-2 702 246	- 3 259 426
Computers					
Exports	36 833	15 535	76 127	22 462	83 827
Imports	4 221 149	4 417 728	5 577 981	6 366 888	7 688 496
Balance	-4 184 317	-4 402 193	-5 501 855	-6 344 426	- 7 604 669
Electronic components					
Exports	313	1 285	2 349	2 289	11 177
Imports	864 873	1 276 529	1 207 938	1 162 739	1 435 153
Balance	-864.560	-1 275 244	-1 205 588	-1 160 450	- 1 423 976
Office machinery					
Exports	0	81	2	390	1 615
Imports	316 219	268 590	324 403	375 847	324 032
Balance	- 316 219	- 268 509	- 324 401	- 375 457	- 322 418
Instruments for measuring etc.[33]					
Exports	48 696	116 656	91 718	120 599	195 867
Imports	1 662 955	1 446 310	2 077 270	1 936 194	3 045 708
Balance	-1 614 259	-1 329 654	-1 985 552	-1 815 595	- 2 849 841
ICT foreign trade, total					
Exports	88 718	138 328	182 913	181 064	363 929
Imports	11 294 745	12 209 995	15 564 607	16 562 389	21 576 843
Balance	-11 206 023	-12 071 667	-15 381 694	-16 381 325	- 21 212 914
Foreign trade, total					
Exports	125 689 779	131 213 245	136 591 964	144 928 114	149 272 774
Imports	124 836 067	131 325 744	162 061 593	167 778 015	187 276 007
Balance	853 712	- 112 499	-25 469 629	-22 849 901	- 38 003 233

[33] Instruments and equipment for detecting, measuring,checking and controlling physical phenomena or processes

Table 3.5.d ICT exports and imports in 1996-2000 by product groups. Norway

Product class	1996	1997	1998	1999	2000
	1.000 NOK				
Telecommunications equipment					
Exports	3 501 800	4 606 319	5 017 025	4 736 476	5 276 358
Imports	5 323 538	5 794 009	7 358 955	7 599 794	9 252 238
Balance	- 1 821 738	-1 187 690	-2 341 930	-2 879 979	- 3 975 880
Consumer electronics					
Exports	262 179	384 171	468 765	436 474	658 656
Imports	2 493 770	2 724 472	3 049 556	3 123 832	3 818 889
Balance	- 2 231 591	-2 340 301	-2 580 791	-2 687 358	-3 160 233
Computers					
Exports	2 241 056	2 723 165	3 108 880	3 514 696	3 480 459
Imports	9 005 840	11 017 391	12 288 164	12 586 727	13 745 792
Balance	-6 764 784	-8 294 226	-9 179 284	-9 072 031	-10 265 333
Electronic components					
Exports	1 228 759	892 682	954 291	1 040 291	1 380 841
Imports	2 475 080	2 824 329	3 019 000	2 914 623	3 717 525
Balance	-1 246 321	-1 931 647	-2 064 709	-1 874 332	-2 336 684
Office machinery					
Exports	190 520	130 084	295 466	357 903	505 194
Imports	921 314	945 772	1 055 168	972 003	1 046 548
Balance	- 730 794	- 815 688	- 759 702	- 614 100	-541 354
Instruments for measuring etc.[34]					
Exports	1 797 697	2 038 110	2 435 147	2 461 368	2 633 286
Imports	2 349 199	2 554 155	2 837 493	2 790 073	2 690 429
Balance	- 551 502	- 516 045	- 402 346	- 328 705	-57 143
ICT Foreign trade, total					
Exports	9 222 011	10 774 531	12 279 574	12 537 656	13 934 794
Imports	22 568 741	25 860 129354	29 608 335	29 987 051	34 271 420
Balance	-13 346 730	-1 085 598	-17 328 761	-17 449 395	-20 336 626
Foreign trade, total					
Exports	320 128 000	342 421 000	304 653 000	355 171 000	528 439 000
Imports	229 720 000	252 232 000	282 638 000	266 677 000	302 852 000
Balance	90 408 000	90 189 000	22 015 000	88 494 000	225 587 000

[34] Instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes

Table 3.5.e ICT exports and imports in 1996-2000 by product groups. Sweden

Product class	1996	1997	1998	1999	2000
	1.000 SEK				
Telecommunications equipment					
Exports	57 462 548	75 222 117	82 306 429	100 521 259	120 107 221
Imports	14 752 227	20 197 986	26 574 294	25 236 241	34 625 954
Balance	42 710 321	55 024 131	55 732 135	75 285 018	85 481 267
Consumer electronics					
Exports	2 102 243	2 163 474	3 923 037	5 183 324	7 034 031
Imports	5 725 585	6 312 467	7 148 991	8 186 600	10 538 387
Balance	-3 623 342	-4 148 993	-3 225 954	-3 003 276	-3 504 356
Computers					
Exports	5 260 153	5 491 398	4 989 032	4 768 364	5 198 578
Imports	21 705 710	23 219 813	28 929 015	26 124 014	28 437 582
Balance	-16 445 557	-17 728 415	-23 939 983	-21 355 650	-23 239 004
Electronic components					
Exports	8 378 218	9 585 000	9 975 259	9 968 955	14 774 947
Imports	12 945 092	16 618 747	17 057 169	20 534 566	30 074 616
Balance	-4 566 874	-7 033 747	-7 081 910	-10 565 611	-15 299 669
Office machinery					
Exports	898 200	956 992	960 304	720 979	728 468
Imports	1 453 141	1 710 160	1 660 518	1 464 967	1 773 814
Balance	- 554 941	- 753 168	- 700 214	-743 988	-1 045 346
Instruments for measuring etc.[35]					
Exports	7 169 282	7 524 462	8 061 535	8 596 256	9 712 262
Imports	7 544 706	7 855 794	8 456 064	8 688 663	10 442 967
Balance	- 375 424	- 331 332	- 394 529	-92 407	-730 705
ICT Foreign trade, total					
Exports	81 270 644	100 943 443	110 215 596	129 759 137	157 555 507
Imports	64 126 461	75 914 967	89 826 051	90 235 051	115 893 320
Balance	17 144 183	25 028 476	20 389 545	39 524 086	41 862 187
Foreign trade, total					
Exports	569 200 000	632 800 000	675 300 000	701 000 000	796 600 000
Imports	448 700 000	501 100 000	545 300 000	567 000 000	666 900 000
Balance	120 500 000	131 700 000	130 000 000	134 000 000	129 700 000

[35] Instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes

Table 4.1.a Number of employed persons by gender. Denmark 1999

	Persons employed		Total	Persons employed		Total
	Male	Female		Male	Female	
	number of persons employed			per cent		
ICT manufacturing industry, total	12 816	9 617	22 433	57	43	100
ICT services activities, total	66 448	27 133	93 581	71	29	100
of which						
Wholesale of ICT products	22 116	8 168	30 284	73	27	100
Telecommunications	11 813	8 246	20 059	59	41	100
Consultancy services, renting of machinery	32 519	10 719	43 238	75	25	100
Manufacturing industry, total,	315 140	149 110	464 250	68	32	100
Services activities, total	628 289	452 122	1 080 411	58	42	100
Total private sector*	1 099 270	634 711	1 733 981	63	37	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.1.b Number of employed persons by gender. Finland 1999

	Persons employed		Total	Persons employed		Total
	Male	Female		Male	Female	
	number of persons employed			per cent		
ICT manufacturing industry, total	26 974	15 895	42 869	63	37	100
ICT services activities, total	40 740	19 386	60 126	68	32	100
of which:						
Wholesale of ICT products	11 795	4 272	16 067	73	27	100
Telecommunications	9 930	7 019	16 949	59	41	100
Consultancy services, renting of machinery	19 015	8 095	27 110	70	30	100
Manufacturing industry, total	300 644	130 801	431 445	70	30	100
Services activities, total	423 721	377 481	801 202	53	47	100
Total private sector*	844 125	535 964	1 380 089	61	39	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.1.c Number of employed persons by gender. Iceland 2000

	Persons employed		Total	Persons employed		Total
	Male	Female		Male	Female	
	number of persons employed			per cent		
ICT manufacturing industry, total	80	24	104	77	23	100
ICT services activities, total	3 371	1 617	4 988	68	32	100
of which:						
Wholesale of ICT products	908	350	1 258	72	28	100
Telecommunications	896	695	1 591	56	44	100
Consultancy services, renting of machinery	1 567	572	2 139	73	27	100
Manufacturing industry, total	17 218	7 910	25 128	69	31	100
Services activities, total	28 826	27 782	57 608	50	50	100
Total private sector*	52 166	39 529	91 695	57	43	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.1.d Number of employed persons by gender. Norway 2000

	Persons employed		Total	Persons employed		Total
	Male	Female		Male	Female	
	number of persons employed			per cent		
ICT manufacturing industry, total	8 012	2 771	10 783	74	26	100
ICT services activities, total	56 590	20 174	76 764	74	26	100
of which:						
Wholesale of ict products	24 243	7 571	31 814	76	24	100
Telecommunications	8 129	4 206	12 335	66	34	100
Consultancy services, renting of machinery	24 218	8 397	32 615	74	26	100
Manufacturing industry, total	208 961	70 661	279 622	75	25	100
Services activities, total	470 717	355 590	826 307	57	43	100
Total private sector*	814 434	456 568	1 271 002	64	36	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.1.e Number of employed persons by gender. Sweden 1999

	Persons employed		Total	Persons employed		Total
	Male	Female		Male	Female	
	number of persons employed			per cent		
ICT manufacturing industry, total	46 644	22 531	69 175	67	33	100
ICT services activities, total	99 622	39 717	139 339	71	29	100
of which:						
Wholesale of ICT products	24 989	9 096	34 085	73	27	100
Telecommunications	16 402	8 390	24 792	66	34	100
Consultancy services, renting of machinery	58 231	22 231	80 462	72	28	100
Manufacturing industry, total	554 536	194 933	749 469	74	26	100
Services activities, total	848 748	610 643	1 459 391	58	42	100
Total private sector*	1 609 008	843 008	2 452 016	66	34	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.2.a Number of employed persons by age. Denmark 1999

	Persons employed						Total
	<25 year	25-34 years	35-44 years	45-54 years	55-64 years	>64 years	
	per cent						
ICT manufacturing industry, total	10	31	30	21	8	1	100
ICT services activities, total	12	35	28	18	6	0	100
of which:							
Wholesale of ICT products	10	39	27	17	7	1	100
Telecommunications	11	27	30	24	8	0	100
Consultancy services, renting of machinery	13	37	28	16	5	0	100
Manufacturing industry, total	15	26	25	21	10	1	100
Services activities, total	22	25	22	19	10	2	100
Total private sector*	19	26	23	20	10	2	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.2.b Number of employed persons by age. Finland 1999

	Persons employed						Total
	<25 year	25-34 years	35-44 years	45-54 years	55-64 years	>64 years	
	per cent						
ICT manufacturing industry, total	14	44	26	14	2	0	100
ICT services activities, total	10	33	31	21	4	0	100
of which:							
Wholesale of ICT products	10	35	32	19	4	0	100
Telecommunications	9	31	28	26	6	0	100
Consultancy services, renting of machinery	11	34	32	20	3	0	100
Manufacturing industry, total	11	25	27	29	8	0	100
Services activities, total	14	24	27	26	9	0	100
Total private sector*	13	24	27	28	8	0	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.2.c Number of employed persons by age. Iceland 2000

	Persons employed						Total
	<25 year	25-34 years	35-44 years	45-54 years	55-64 years	>64 years	
	per cent						
ICT manufacturing industry, total	14	25	26	20	9	6	100
ICT services activities, total	14	35	26	15	7	4	100
of which:							
Wholesale of ICT products	14	27	27	20	8	5	100
Telecommunications	14	30	20	16	14	6	100
Consultancy services, renting of machinery	13	43	30	11	2	1	100
Manufacturing industry, total	22	22	23	18	11	4	100
Services activities, total	22	24	22	18	10	3	100
Total private sector*	22	23	23	18	11	4	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.2.d Number of employed persons by age. Norway 2000

	Persons employed						Total
	<25 year	25-34 years	35-44 years	45-54 years	55-64 years	>64 years	
	per cent						
ICT manufacturing industry, total	5	31	30	22	11	1	100
ICT services activities, total	7	36	30	19	8	1	100
of which:							
Wholesale of ict products	7	32	29	20	10	1	100
Telecommunications	7	36	28	20	9	0	100
Consultancy services, renting of machinery	8	40	31	16	5	0	100
Manufacturing industry, total	10	25	26	23	14	1	100
Services activities, total	16	26	24	20	11	2	100
Total private sector*	14	26	25	21	12	2	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.2.e Number of employed persons by age. Sweden 1999

	Persons employed						Total
	<25 year	25-34 years	35-44 years	45-54 years	55-64 years	>64 years	
	per cent						
ICT manufacturing industry, total	10	35	26	19	10	0	100
ICT services activities, total	9	37	27	20	7	0	100
of which:							
Wholesale of ICT products	10	39	26	16	7	1	100
Telecommunications	5	22	26	33	12	0	100
Consultancy services, renting of machinery	8	41	28	17	6	0	100
Manufacturing industry, total	9	27	25	24	15	1	100
Services activities, total	12	27	24	23	13	1	100
Total private sector*	11	26	24	23	14	1	100

* NACE 15-37, 45, 50-74, 92, 93

Table 4.3.a Number of employed persons by level of education. Finland 1999

	Below upper secondary education[1)]	Upper secondary education[2)]	Non-university tertiary education[3)]	University level education[4)]	Total
	per cent				
ICT manufacturing industry, total	15	39	15	30	100
ICT services activities, total	12	35	27	26	100
of which					
Wholesale of ict products	16	36	26	22	100
Telecommunications	16	38	26	20	100
Consultancy services, renting of machinery	8	34	27	31	100
Manufacturing industry, total	26	49	13	12	100
Services activities, total	27	41	19	13	100
Total private sector*	27	45	16	12	100

1) ISCED 97, 0/1/2 + no information (ISCED 9)
2) ISCED 97, 3
3) ISCED 97, 5
4) ISCED 6/7
* NACE 15-37, 45, 50-74, 92, 93

Table 4.3.b Number of employed persons by level of education. Iceland 1999

	Below upper secondary education[1)]	Upper secondary education[2)]	Non-university tertiary education[3)]	University level education[4)]	Total
	per cent				
ICT manufacturing industry, total	0	100	0	0	100
ICT services activities, total	18	39	23	20	100
of which					
Wholesale of ict products	30	40	30	0	100
Telecommunications	33	42	17	8	100
Consultancy services, renting of machinery	5	36	23	36	100
Manufacturing industry, total	52	27	14	7	100
Services activities, total	44	28	11	16	100
Total private sector*	45	29	15	12	100

1) ISCED 97, 0/1/2 + no information (ISCED 9)
2) ISCED 97, 3
3) ISCED 97, 5
4) ISCED 6/7
* NACE 15-37, 45, 50-74, 92, 93

Table 4.3.c Number of employed persons by level of education. Norway 2000

	Below upper secondary education[1)]	Upper secondary education[2)]	Non-university tertiary education[3)]	University level education[4)]	Total
	per cent				
ICT manufacturing industry, total	10	50	25	14	100
ICT services activities, total	7	52	31	9	100
of which					
Wholesale of ict products	10	66	21	3	100
Telecommunications	5	51	34	10	100
Consultancy services, renting of machinery	5	39	41	15	100
Manufacturing industry, total	18	68	11	3	100
Services activities, total	15	64	16	5	100
Total private sector*	16	66	14	4	100

1) ISCED 0/1/2 + no information (ISCED 9)
2) ISCED 3
3) ISCED 5
4) ISCED 6/7
* NACE 15-37, 45, 50-74, 92, 93

Table 4.3.d Number of employed persons by level of education. Sweden 1999

	Below upper secondary education[1)]	Upper secondary education[2)]	Non-university tertiary education[3)]	University level education[4)]	Total
	per cent				
ICT manufacturing industry, total	16	46	19	19	100
ICT services activities, total	8	44	27	22	100
of which					
Wholesale of ict products	11	53	23	13	100
Telecommunications	8	64	17	11	100
Consultancy services, renting of machinery	6	33	31	30	100
Manufacturing industry, total	28	54	11	7	100
Services activities, total	22	52	14	12	100
Total private sector*	25	54	12	9	100

1) ISCED 0/1/2 + no information (ISCED 9)
2) ISCED 3
3) ISCED 5
4) ISCED 6/7
* NACE 15-37, 45, 50-74, 92, 93

Annex III. Data definitions and data sources

Denmark

Variable[36]	Source	Further information
Number of employees (16 13 0)	Statistics of employment and establishments	*Danmarks Statistik, Statistiske Efterretninger, Generel erhvervsstatistik* (General business statistics) *2001:7, Erhvervsbeskæftigelsen 1999*
Persons employed (16 11 0)	Statistics of employment and establishments	*Danmarks Statistik, Statistiske Efterretninger, Generel erhvervsstatistik* (General business statistics) *2001:7, Erhvervsbeskæftigelsen 1999*
Turnover (12 11 0)	Statistics of turnover in industries	*Danmarks Statistik, Statistiske Efterretninger, Generel erhvervsstatistik* (General business statistics) *2001:6, Momsregistrerede virksomheder 1999: Antal, omsætnings- og eksportfordelinger*
Gross value added (value added at basic prices) (12 14 0)	General accounts statistics for non-agricultural industries	*Danmarks Statistik, Statistiske Efterretninger, Generel erhvervsstatistik* (General business statistics) *2001:11,Generel regnskabsstatistik 1999*
Wages and salaries (13 32 0)	Statistics of employment and establishments	*Danmarks Statistik, Statistiske Efterretninger, Generel erhvervsstatistik* (General business statistics) *2001:7, Erhvervsbeskæftigelsen 1999*
Number of enterprises (11 11 0)	Statistics on enterprises	*Danmarks Statistik, Statistiske Efterretninger, Generel erhvervsstatistik* (General business statistics) *2001:13, Firmastatistik 1999*
Persons employed, by gender (16 11 0)	Statistics on education and labour market status	*Danmarks Statistik, Statistiske Efterretninger, Uddannelse og kultur 2001:11,* (Education and Culture) *Befolkningens uddannelses- og arbejdsmarkedsstatus 2000*
Persons employed, by age (16 11 0)	Statistics on education and labour market status	*Danmarks Statistik, Statistiske Efterretninger, Uddannelse og kultur 2001:11,* (Education and Culture) *Befolkningens uddannelses- og arbejdsmarkedsstatus 2000*
Turnover by products for ICT consultancy services	Statistics for the services sector	*Danmarks Statistik, Statistiske Efterretninger, Serviceerhverv 2001:52,* (Services sector) *Produktstatistik for serviceerhvervene 2000*
Import and export	Statistics on Foreign Trade	*Danmarks Statistik, Statistiske Efterretninger, Udenrigshandel 2001:3* (Foreign trade)*, Udenrigs-handelen december 2000,* samt *Udenrigshandel 2001:5* (Foreign trade)*, Afgrænsning og definitioner*

[36] Numbers in brackets refer to the variable as coded in the Methodological Manual.

Finland

Variable	Source	Further information
Number of persons employed (16 11 0)	Yritysrekisteri (Business Register)	Tilastokeskus, Suomen yritykset (Enterprises) 1996:4, 1997:3, 1998:25, 1999:3, 2000:1, 2001:2
Turnover (12 11 0)	Yritysrekisteri (Business Register)	Tilastokeskus, Suomen yritykset (Enterprises) 1996:4, 1997:3, 1998:25, 1999:3, 2000:1, 2001:2
Gross value added (Value added at factor costs).	Yritysten rakennetilasto (Structural Business Statistics)	Statistics Finland, Business Structures
Wages and salaries (13 32 0).	Yritysrekisteri (Business Register)	Tilastokeskus, Suomen yritykset (Enterprises) 1996:4, 1997:3, 1998:25, 1999:3, 2000:1, 2001:2
Number of enterprises (11 11 0)	Yritysrekisteri (Business Register)	Tilastokeskus, Suomen yritykset (Enterprises) 1996:4, 1997:3, 1998:25, 1999:3, 2000:1, 2001:2
Persons employed by gender (16 11 0)	Alueittainen työssäkäyntitilasto (Regional employ-ment statistics)	Statistics Finland, Population Statistics
Persons employed by age (16 11 0)	Alueittainen työssäkäyntitilasto (Regional employ-ment statistics)	Statistics Finland, Population Statistics
Persons employed by education (16 11 0)	Alueittainen työssäkäyntitilasto (Regional employ-ment statistics)	Statistics Finland, Population Statistics
Turnover by products for ICT consultancy services	Pilot survey on computer services	Statistics Finland, Business Structures
Import and export	ULTIKA data base for foreign trade	National Board of Customs

Iceland

Variable	Source	Further information
Number of employees (16 13 0)	Administrative sources	Statistics Iceland
Number of persons employed (16 11 0)	Administrative sources	Statistics Iceland
Turnover (12 11 0)	Administrative sources	Statistics Iceland
Gross value added (Value added at basic prices) (12 14 0)	n.a.	
Wages and salaries (13 32 0)	Administrative sources	Statistics Iceland
Number of enterprises (11 11 0)	Register of Enterprises and Value Added Tax Register	Statistics Iceland
Persons employed, by gender (16 11 0)	Administrative sources	Statistics Iceland
Persons employed, by age (16 11 0)	Administrative sources	Statistics Iceland
Persons employed, by education (16 11 0)	Administrative sources	Statistics Iceland
Import and export	Foreign Trade Statistics	Statistics Iceland

Norway[37]

Variable	Source	Further information
Number of persons employed (16 11 0)	Structural Statistics and National accounts	Statistics Norway,http://www.ssb.no
Turnover (12 11 0)	Structural Statistics and National accounts	Statistics Norway,http://www.ssb.no
Gross value added (Value added at basic prices) (12 14 0)	Structural Statistics and National accounts	Statistics Norway,http://www.ssb.no
Wages and salaries (13 32 0)	Structural Statistics and National accounts	Statistics Norway,http://www.ssb.no
Number of establishments[38] (11 11 0)	Structural Statistics	Statistics Norway,http://www.ssb.no
Persons employed, by gender (16 11 0)	Labour market statistics	Statistics Norway,http://www.ssb.no
Persons employed, by age (16 11 0)	Labour market statistics	Statistics Norway,http://www.ssb.no
Persons employed, by education (16 11 0)	Labour market statistics	Statistics Norway,http://www.ssb.no
Import and export	External Trade Statistics	Statistics Norway,http://www.ssb.no

[37] For Telecommunication all structural figures are preliminary and partly estimated.

[38] For Norway number of establishments is used, except for telecommunication where figures are enterprises.

Sweden

Variable	Source	Further information
Number of employees (16 13 0) Full-time equivivalents	Business statistics	Contact: SCB Örebro, The Manufacturing Program and The Services Program, Phone +46 19 17 60 00
Number of persons employed (16 11 0)	Labour statistics Based on Administrative Sources	Contact: SCB Örebro; The Program for Labour statistics Based on Administrative Sources, Phone +46 19 17 60 00
Turnover (12 11 0)	Business statistics	Contact: SCB Örebro, The Manufacturing Program and The Services Program, Phone +46 19 17 60 00
Gross value added (value added at basic prices) (12 14 0)	Business statistics	Contact: SCB Örebro, The Manufacturing Program and The Services Program, Phone +46 19 17 60 00
Wages and salaries (13 32 0)	Business statistics	Contact: SCB Örebro, The Manufacturing Program and The Services Program, Phone +46 19 17 60 00
Number of enterprises (11 11 0)	Services	Contact: SCB Örebro, The Manufacturing and The Services Program, Phone +46 19 17 60 00
Persons employed by gender (16 11 0)	Labour statistics Based on Administrative Sources	Contact: SCB Örebro; The Program for Labour statistics Based on Administrative Sources, Phone +46 19 17 60 00
Persons employed by age (16 11 0)	Labour statistics Based on Administrative Sources	Contact: SCB Örebro; The Program for Labour statistics Based on Administrative Sources, Phone +46 19 17 60 00
Persons employed by education (16 11 0)	Labour statistics Based on Administrative Sources	Contact: SCB Örebro; The Program for Labour statistics Based on Administrative Sources, Phone +46 19 17 60 00
Turnover by products for ICT consultancy services	Business statistics	Contact: SCB Örebro; The Services Program, Phone +46 19 17 60 00
Import and export	Foreign trade statistics	Contact: SCB Stockholm, The Foreign Trade Program, Phone +46 8 506 940 00