



# Conditions for the Development of New Ways of Working and Electronic Commerce in Sweden

by:

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## 0. Introduction

Political, economic, social etc. conditions are of crucial importance for the diffusion of new ways of working and business. Governments on different levels can impact these by means and programmes of different types (e.g. awareness raising initiatives, investment programmes, competitions for best-practice examples, information society initiatives), which more or less directly address the subjects of "electronic commerce" and "new ways of working".

Also the role and policies of the – due to deregulation - growing number of telecommunications network and service providers need to be considered since their policies for instance with respect to tariff structures and prices as well as services offered can have significant impacts, too. The same holds true for initiatives started by industry, trade unions or the social partners, as well as industry associations.

*The objectives of the present country report are to:*

*Identify and analyse the conditions for the development of new ways of working, especially telework and electronic commerce in Sweden*

*Compile an overview of policy, regional development and economic measures and activities and assess their applicability for goal achievement and success.*

*The data upon which the assessment of conditions for the development of new ways of working and electronic commerce have been gathered through interviews with national, regional and local partners.*

# 1. Policy Background in Sweden

## 1.1 Telecom liberalisation, tariffing, availability etc

In July 1993 the Swedish telecommunicationmarket was liberalised. This resulted in great changes: The monopoly vanished and a new Telecommunications Act was introduced. The telecommunications market can be divided into two - network capacity and telecommunications services. There are more than 60 companies competing on each market.

Telia AB are leading the market in most areas. The company is today owned by the state, but discussions are proceeding to put it under private ownership. Telia AB are the only provider to have direct access to all Swedish households. Their circle of clients is about 4,5 million households and 1,5 million enterprises (1998), which means almost 99% of the existing households.

The dominating position of Telia AB has been subject for discussion ever since the liberalisation started. The company has earlier been unwilling to let other serviceproviders use their fixed access network to deliver telephone/internet services. In the beginning of 2000 though, Telia AB have announced that they will open up the access network for other operators.

Other actors on the telecommunications/internet services-side are NetComSystems (Tele2 and Comviq), Europolitan, Spray, Telenordia etc.

On the network capacity-side are the likewise state-owned Banverket, Svenska Kraftnät, Teracom, Vattenfall and Sydkraft important builders of back-bone. Private actors are i.e. Utfors and Bredbandsbolaget. The former is building back-bone, but are also providing telephone services and Internet-access. The latter is offering high-capacity Ethernet-networks to low prices for housingfirms all over the country. Many municipalities have built their own telecommunications access networks and are providing services to companies and inhabitants. There are also enterprises delivering access by radio, cabelTV etc.

The liberalisation in 1993 has resulted in a dramatic drop in pricelevels on international and long-distance calls in Sweden. The price for an international call to the USA have decreased more than 70% in Telia ABs tariffs. Local calls were on the contrary increased in price, as a consequence of the earlier total domination by Telia AB in this area. During recent years however competitors are offering cheaper prices in alternative access networks, such as municipal networks etc, which has lowered prices.

The mobilemarket is dominated by three companies: Telia (50% of the market, 1998), Comviq (30%) and Europolitan (20%), whom all have their own GSM-networks. The mobile penetration is high in Sweden – about 4,6 million people are mobile subscribers (about 50% of the population). Today the three net-owners have got a de-facto monopoly to deliver mobile services, which the Swedish government considers is restraining pricetrends and competition on the market. In January 2000 the government submitted a bill – "Furthering

Competition in the Mobile Telecommunications Market" – to make it easier for other suppliers of mobile services to gain access to various mobile networks.

In later years a discussion on the right for all citizens in all regions to have equal access to a high-capacity ICT-infrastructure to an equal price, has been held in Sweden. The debate has been focused on whether the state should or should not be responsible for the provision of a broadband-infrastructure to areas of lesser interest to the market. In spring 2000 the Swedish government will present a bill on an ICT-policy, which is expected to contain a standpoint on this issue.

### **1.1.1 Internet access policies and tariffs**

Sweden is among the best-equipped in Europe in terms of PC penetration and use in private households. Also in terms of internet access Sweden is one of the top countries - 58 % of the population has got access to the internet and/or ever used the internet (ECaTT, -99). One important factor for these numbers is possibly the so-called "PC-reform", which was introduced by the government in 1996. The implication of the reform is that an employer who equips an employee with a PC for private use gets a tax deduction. The number of PCs and internet subscriptions sold within the reforms context is high.

In recent years the pricelevels on access to the Internet have gone down and many providers - private, as well as i.e. municipal telecommunications actors - are offering free access to the Internet. In the beginning of 2000 a few providers have notified "flat-rate" trials, fixed prices without time-based fees, to a cost of about 100 SEK a month (11,8 EUR).

## **1.2 National strategies**

In 1996 the Swedish government presented a bill concerning a national ICT-strategy. A complementary addition to this was made in 1998 since the development within the area changes very quickly. The distinguished goals of these documents where as follows:

To use ICT in an active way to create growth and employment that makes Sweden competitive as a nation,

To protect everyone's equal right to use ICT as a tool for higher skills and capability, democracy and justice,

To make use of both women and men, according to experiences and competence, in developing ICT,

To use ICT to develop the welfare state and to increase the citizens quality of life,

To use ICT to support groups with special needs in the society,

To create a broad access to information to make people more involved and for progressing the level of proficiency and skills,

To keep up and develop the Swedish language and culture in a more and more boundless world,

To use ICT to increase the efficiency and quality in the public sector, and to improve the services towards citizens and companies.

What has been done so far to reach these goals?

#### Goal 1:

Sweden is a competitive nation when it comes to ICT, at least according to several studies where Sweden is in "the ivy league" concerning PC-penetration, Internet usage etc.

The difficulty is to say whether ICT itself has created growth and employment. So far, it might be that most of the ICT investments done are bringing more costs than profits to the company. It's sometimes hard though to ratify the relation between ICT and productivity.

According to employment it might be hard to evaluate the effects of ICT. In the new, fast growing ICT-companies the growth in employment figures are quite obvious. But in the traditional industry it might instead be a decrease in employment. This as a result the rationalisations made possible by ICT. But, as we are in the beginning of the information society, it might just be in the short run.

#### Goal 2, 4 and 8:

In Sweden there are initiatives on a national regional and local level (see "Toppledarforum" and "GEA") to raise the use of ICT in the public sector. Efforts are also made to stimulate the use of ICT in the communication between the public sector and the citizens. This is to raise efficiency, dissemination of technology and public control.

#### Goal 3:

The ECaTT survey shows that the use of ICT is quite equal between the sexes. The gap that exists today is estimated to almost be diminished within 2 years.

One problem though, is that the number of women applying for ICT related university courses is decreasing.

There is also a huge question mark whether we have managed to involve, and made use of, the massive knowledge and skills hidden among immigrants or not.

#### Goal 6:

Here the digital infrastructure plays an important role. Sweden already has a good infrastructure compared to other countries.

Thanks to public actors we have a good backbone structure all over the country. About 170 municipalities (out of 288) have their own urban network.

The government now has the vision of providing all companies and households in Sweden with broadband (5Mbits) capacity within five years at equal costs around the country. In Sweden the question discussed is if the state should be involved in the procedure or to what extent the ICT-infrastructure should be a concern for the market.

The infrastructure has a function of two dimensions. One is to get a broad geographical spread. The other is on the depth to avoid segregation in the society.

In 1998 the government made a PC-reform to broaden the competence within the ICT area. The reform makes it possible for the employer to provide the employee with a PC for private use and get a tax-deduction. This is to make it possible to raise the general ICT-knowledge in the society. The reform has been a success and the possibility is used in many companies.

### 1.3 National initiatives

First of all a number of initiatives are made on a Nordic level concerning e-commerce.

According to a Swedish initiative a Nordic group for e-commerce has been created. This group has exchanged experiences from each country. It has also gathered proposals from trade and industry concerning "what to do to support/encourage the use of e-commerce in the Nordic countries". This work was finished in August this year and the proposals were delivered to the ministers of trade and industry in the different countries.

Some of the suggestions were :

that the users of the new media have to feel secure using e-commerce

to use the public sector as a good example

to identify the actual problems within the trade business

There are also Nordic co-operations concerning for example electronic signatures and marketing on the Internet.

On a national level there are some initiatives to support and raise the use of e-commerce.

There is an organisation on national level to introduce and promote e-commerce in both the public and private sector. The group is called GEA (The Group of E-commerce) and it consists of the Swedish Association of Local Authorities, the Association of Swedish County Council, the Swedish Agency for Administrative Development, the Federation of Swedish Industries, the Swedish Federation of Trade, the Federation of Private Enterprises, the Swedish Bankers Association and the Swedish ICT-companies Organisation.

GEA works within the following areas:

-policy (such as legislation, certification and procedures)

-education and awareness

-standardisation

Within the frame of GEA a new project has started called SVEA. The aim is to raise the use of e-commerce in SMEs and smaller municipalities and to find possible forms of co-operations.

The SWIT-project (Sweden Information Technology) is a non-profit association, which was created by the Federation of Swedish Industries and the Swedish ICT-companies Organisation to educate 10.000 unemployed persons within the area of ICT. Basically they are educated to work with development, applications and as specialists within the technical area.

This action is expected to, to at least some extent, solve the claims from the market concerning competence in the area. On the other hand, the Swedish ICT companies don't think that SWIT live up to the standards demanded by the market. They think that money should have been invested in ICT-related education on university level plus that the money should have been used on computers in schools instead.

The SME-link is a national initiative financed by (among others) the Ministry of Industry.

This is a project aimed at SMEs to help them use the Internet to be more efficient and to develop the company. Through a website the companies can easily find information about customers, suppliers and partners. The companies can also reach the European database TED (Tender Electronic Daily) to participate in public tenders.

University students are used as "SME-link navigators". They visit the company for a certain amount of hours for an introduction to the Internet.

The SME-link project started as a local/regional project, but the concept of using university students as navigators in SMEs is now being used in several places around the country.

The founders of the SME-link project are right now helping to start up a similar project in the Baltic States

A two year project is run by NUTEK (the Swedish National Board for Industrial and Technical Development) which is called ICT@SMEs.

The purpose of this project is to promote the use of ICT in small and medium sized companies by identifying what kind of support SME's need from the public sector

To get a picture of the needs in companies, and of what the public sector does today, the following main actions have been done:

An overview of what's being done all over Sweden to support SME's in their use of ICT.

A study on the use of ICT and the attitudes towards ICT in SMEs (a national survey in 3.500 companies).

Looking over the visions of the policy makers within the area. That means interviews with those responsible of ICT in all political parties and in the Government, the Swedish Association of Local Authorities, the Association of Swedish County Council, the Federation of Swedish Industries, Swedish ICT-companies Organisation, ICT network and service providers etc, to get their view of what is done today, and what will be done in the future, to support SME's in their use of ICT.

According to this the project has the ambition to make recommendations on necessary actions, and to act as a source of information. This will be done through, among others, an official database connected to our website ([www.nutek.se/it.smaforetag](http://www.nutek.se/it.smaforetag)). The database will consist of information concerning on-going projects and whom to contact for further information.

## 1.4 Local and regional initiatives

In Sweden the Government is right now dealing with all 21 regions over the country concerning the so-called "Regional growth agreements". This means that the regional County Councils, in collaboration with other local/regional partners, creates a kind of agreement where they point out what specific actions they want to do to obtain growth in their region. Then they negotiate with representatives from the state to obtain financing.

ICT plays an important role in the "Regional growth agreements". In 15 of the 21 regions there are serious plans to build local/urban area networks, and in some cases, to connect these into regional networks – all with broadband capacity.

On a regional level the initiatives to raise the use of ICT are usually taken by regional universities, alone or in co-operation with other partners.

Most universities deal with questions concerning the raise of competence in companies – ICT in general and e-commerce in specific.

In some municipalities and regions a permanent co-operation between regional universities and companies with the aim to raise the ICT competence in general and to faster identify the needs in the companies.

Many municipalities and county councils do push their own development within the area to raise their own use, and to create a competitive trade and industry in their district. This can be seen especially in the northern parts of the country where most of the regional actors are involved in for example implementing e-commerce.

In smaller municipalities this is done in collaboration with local business-organisations.

In the County of Västerbotten collaboration between partners like universities, the County Council and municipalities has led to a regional IT-board. This is an organisation that co-operates concerning consultation and joint actions within

the area of ICT. This co-operation has led to AC-net (a regional telecommunications network), a regional ICT-strategy, and projects to raise the use of e-commerce, telework and telemedicine.

AC-net is a fibre optic network that connects all municipalities in the county. This network is a fast and inexpensive solution.

The county is also one of the 22 pilot regions within the EU that is connected to the "Regional Information Society Initiative" – RISI.

Jämtland is another northern county where different regional partners do co-operate. Also private enterprises do co-operate. Vindue is an example where a number of ICT-companies work together to put pressure on regional public actors to make more efforts for ICT awareness, knowledge and usage.

The County Council works strategically with the different municipalities for an ICT-infrastructure (Kontur) and the competence together with usage of ICT in SMEs (ECITT) – all to improve the information society.

The most northern county of Sweden – Norrbotten – has made a formal partnership of their regional ICT-board (IT-Norrbotten). Their main goal is to improve the physical and mental ICT-infrastructure in trade and industry.

This organisation is partly financed by the European structural funds.

The organisation has built ISDN between 95 cities which has made it possible to use the new technology at a reasonable price in a sparsely populated area.

The county, and island, of Gotland (south of Stockholm in the Baltic Sea) has quite some experience to manage and run teleworking projects.

The regional university has, together with private ICT entrepreneurs within the area of interactive media ("Interactive Island"), become a pro-active partner to increase the use of ICT in companies and the society.

The island of Gotland wants to become a national, and international, test area for broadband.

In Skåne, which is the most southern county of Sweden, most actions and projects are run on a local level.

The city of Skurup is involved in two international ICT-projects (City-Net and IT-Bridge) in collaboration with Denmark and Germany. The purpose is to make the local companies more competitive.

Another project is Pejl på IT (=get to know ICT) which aims to train companies in their use of ICT. The unique thing is that the project is mobile through a trailer that visits the companies.

The county of Blekinge is very much associated with ICT.

IT-Blekinge is a non-profit association involving the County Government Board, the municipalities, the County Council, the regional university, and private enterprises.

IT-Blekinge is an active partner in raising the use of ICT in the society.

The "Soft Center" at the University of Ronny is a way of getting a closer connection between companies and the "academic world".

"Soft Centers" exists close to several universities in Sweden, and they all have different aims for their activities like for instance e-commerce, mobile communication, ICT-clusters etc.

Blekinge has become one of the leading ICT-regions in Europe. Interesting projects are BIT-Världshus (for telework) and Elektroniska affärer (e-commerce).

In Västra Götaland (West Sweden) there is an interesting project to raise the use of e-commerce (B`NAIS). This project illustrates how a city can implement electronic commerce in large scale among its business partners in an effort to improve the efficiency of business dealings. The B`NAIS project is one of four finalists in the "Global Bangemann Challenge -99" in the category of Electronic Commerce.

## 2. ECaTT - Electronic Commerce and Telework Trends: Benchmarking Progress on New Ways of Working and New Forms of Business across Europe

### 2.1 Background

European policy is increasingly focussed on promoting the business techniques and new ways of working which will provide the economic and social foundation of the Information Society. It will be essential to monitor the effectiveness of this policy, some indication of progress and of areas requiring more or more concerted action. At the same time, many areas of European business urgently need of information about the speed of these developments in European markets, which they expect to have a strong impact on their global competitiveness. Despite the increasing number of studies on electronic commerce and telework, no single source of reliable empirical information exists on the extent, scope, nature of and factors affecting the speed of these developments in Europe.

The ECaTT project will generate representative information on the prevalence and spread of electronic commerce and new forms of work in Europe. It will also give an up-to-date picture of major practices, projects and schemes across Europe. ECaTT will conduct three major data gathering activities.

100 case studies in most Member States, with half each focussing on new ways of working and on electronic commerce.

An Interview survey of 7,500 EU citizens in at least 10 EU Member States covering attitudes to and practice of new ways of working and electronic commerce

An Interview survey of at least 4,000 EU businesses in at least 10 EU Member States, covering current practice and plans to introduce the various forms of new ways of working and electronic commerce.

The countries to be covered are

- Germany
- United Kingdom
- France
- Italy
- Spain
- Sweden
- Finland
- Denmark
- the Netherlands
- Ireland

Information on new ways of working and electronic commerce in the US and Japan will be collated as reference bases in order to benchmark progress in Europe as a whole. National conditions for development of electronic commerce and new forms of work will also be investigated.

The EcaTT-project has its own web-site: <http://www.ecatt.com>

## 3. The main ECaTT findings on Electronic Commerce in Sweden

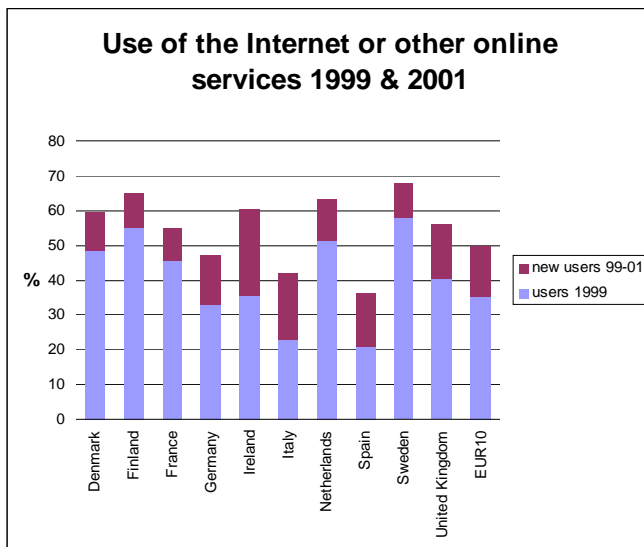
### 3.1 PC and e-mail usage, Internet and online services access and use in households

Sweden is one of the frontrunners when it comes to PC penetration, Internet access and e-mail use in households. The divisions between sexes and ages are beginning to smooth out.

Sweden is among the best-equipped in Europe in terms of PC penetration and use in private households. Of Swedish households 60% have access to a PC at home, only the Netherlands and Finland are comparable in Europe. Also in terms of Internet access Sweden is one of the top countries, 58 % of the population has got access to the Internet and/or ever used the Internet.

Sweden has the highest amount of e-mail users in Europe - 40 % have ever used e-mail (European average is 18 %) and 34,1% have access at home.

The growth in use of the Internet in Sweden is not expected to be as dramatic as in some other European countries (i.e. Ireland, 69.1 % growth 1999-2001), most probable as a consequence of already having reached the point of saturation. Despite this Sweden will still be in the lead in Europe in 2001.



#### 3.1.1 Division between sexes, ages and educational level:

As in most other countries the Internet has earlier been a male phenomenon in Sweden, but the male dominance has lately decreased in all the frontrunner countries

(Scandinavia, Netherlands). In Sweden it is estimated to be closed in about two years time

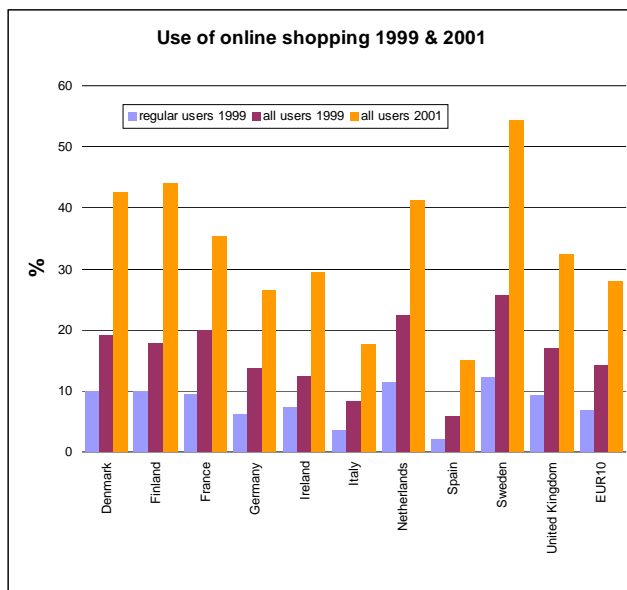
The division between ages among internet-users in Sweden is fairly equal in the ages below 49 years. Compared to most other European countries the use in the age group 50-64 is notably high, but falls dramatically in the group >64, (9 %).

There is an obvious relationship between a high level of education and use of the Internet in most European countries. In Sweden however, the share of users with low levels of education has increased markedly in the past years, compared to most other European countries.

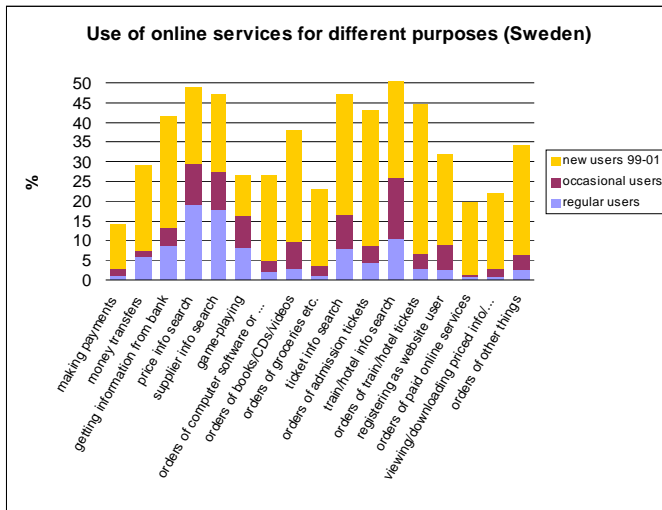
### 3.2 Online activities with relevance for electronic commerce by households: Online shopping and banking

Swedish households are among the best in online shopping and banking, but the differences between countries in Europe are small and generally numbers still are low.

Swedish households are the best in Europe in online shopping, with 26% ever once bought something on the web. This figure is expected to be doubled in the two years to come.



The European average for ever been engaged in online shopping activities is 15%. Products that often are said to be suitable for selling on the web – like CDs and books – are still to a low amount ordered for electronically by Europeans (4%), as well as by Swedish households (10%). Payment online occurs just as rarely, 4% of European households have ever paid for goods online. The figure for Sweden is even lower, 3%.

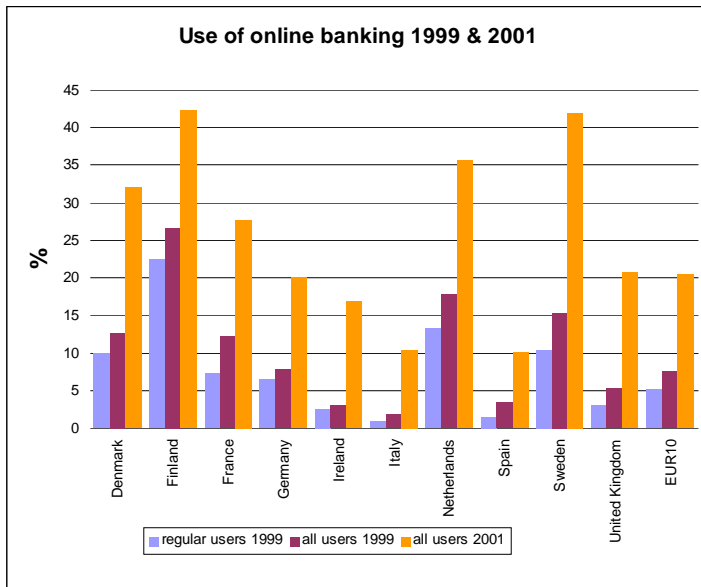


The most common way Swedish households are using the Internet with relevance to electronic commerce is search for information about prices, suppliers and travelling services.

Europeans in common and Swedish households in particular, are also very cautious about online payment methods, as sending their creditcard- or accountnumber over the Internet. Only 20% of Swedish households would accept this method, while 36% would accept a form of Internet currency/E-cash and more than 80% cash on delivery.

### 3.2.1 Online banking

The differences between the frontrunners and other countries are not as significant when it comes to ordering/payment and banking-services, as on the e-mail and Internet use-areas. Finland is clearly in the lead with almost a quarter of the population practising online-banking. Today the number of online-bankers in Sweden is about half of the Finnish amount, but is expected to have levelled in the year of 2001.



### 3.2.2 Barriers to online shopping

1/3 of European households asserts that the key barrier for shopping online is that there is "no need for it". ¼ points at lack of technical ability in the home as a significant barrier. The feeling of not being able to form an opinion of the product ("product characteristics"), i.e. through touching, is being mentioned as the third place-factor. Quite surprisingly security, privacy-issues and the risk of defraud are mentioned by less than 6% of the European households as a barrier. Swedish households rates security higher (12%), just as the population in most other frontrunner countries. This indicates that awareness of the problems and risks is connected to a high degree of use of the Internet and online shopping. The key-barrier for Swedish households is product characteristics (19%).

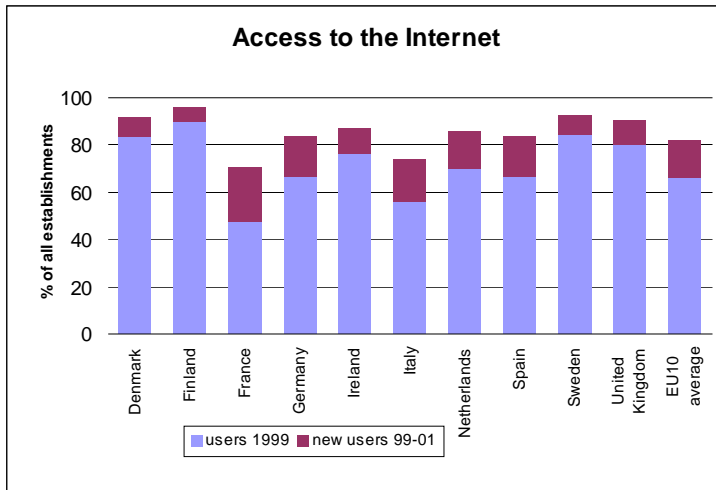
### 3.2.3 Advantages of online shopping

Less effort, faster delivery and a greater supply of products are the main advantages of online shopping, according to the survey. 1/3 of the European population also believes that buying online will save money.

## 3.3 E-mail, Internet and online services access and use by establishments

The Scandinavian countries have the highest numbers of establishments using e-mail, the Internet and Intranets in Europe. Even the smallest companies are quite frequent users.

The European average on the business-side is quite high in e-mail (62 %) and Internet (66 %) use. Swedish establishments are on top, together with Finland, with 83 % using e-mail and 84 % having access to the Internet.



Intranets are, according to a recent study from IDC<sup>1</sup>, increasing in importance for all businesses. The qualities of Intranets are also changing, from having been simple information channels, to becoming the infrastructure that integrates all business-information in the company. Swedish businesses are well prepared in this area, in the sense that more than 55% are using Intranets. Only the smallest companies are lagging behind.

All over Europe bigger companies still are more frequent than SMEs in the use of electronic media. Though the gap is beginning to close up, this is also a fact in Sweden, especially on the Intranet side.

Use of e-mail, internet and intranet in Swedish establishments according to size of organisation in 1999

	<b>0-9 empl.</b>	<b>10-49 empl.</b>	<b>50-199 empl.</b>	<b>200-499 empl.</b>	<b>&gt;500 empl.</b>	<b>Average</b>
e-mail user	<b>58,6%</b>	<b>85,9%</b>	92,5%	89,6%	100%	83,2%
Internet-user	<b>68,4%</b>	<b>88,5%</b>	85,1%	91,8%	97,2%	84,3%
Intranet user	<b>27,9%</b>	<b>51,3%</b>	67,9%	68,1%	84,5%	55,8%
© empirica 1999						

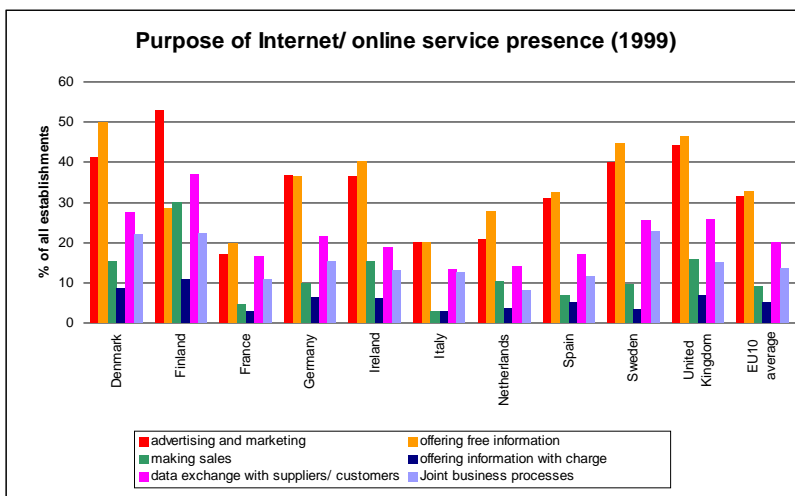
<sup>1</sup> U.S. Intranet Usage and User Intentions, 1998-1999, IDC

### 3.4 Online and electronic commerce activities by establishment

Swedish establishments are present on the net to a high degree, but does not offer more advanced services, like online sales, on the business-to-consumer side.

Swedish establishments have a high degree of presence on the Internet (54%). Even the smallest companies (0-9 employees) are rather well represented (39%). Finland (66%) and Denmark (55%) are ahead in Europe.

Even if the numbers of presence are high in most European countries many of the business-to-consumer websites do not offer more advanced services to their customers. Mostly they are used for marketing purposes and the providing of information about company and products.



Only 10% of Swedish establishments (18% of the ones already online) offer sales possibilities in the business-to-consumer area, which is a low rate in Europe (EU average is 9,3%). The increase is also expected to be rather slow in the next two years, 17% will be making sales in 2001. This means that Swedish companies then will rate below the European average, which is expected to be 23%.

The differences between sectors offering online-sales are high. The manufacturing/construction industry is far behind, with only 4% offering online sales, while the financial/business-sector reaches more than 20%.

Swedish businesses have also been slow at seeing the possibilities with the Internet to offer information with charge, only 3,5% are using opportunities in this area.

The amount of companies using the Internet for business-to-business activities is higher. Procurement online is being used by 38%, with neglectable differences among sectors. Joint business processes and data exchange with suppliers and customers are also used to a high extent.

### 3.4.1 Barriers to online sales and online procurement

The key barrier to Swedish companies, that do not offer or plan to offer online sales, is "product characteristics" (41%); i.e. that products are not suitable for selling on the web. "No need" (35%) and "missing customer demands" (9%) are also essential barriers. As on the customer side, factors that are commonly related to, such as security (1,8%) and dangers of fraud, seem not to be as significant as expected.

The most important barriers to online-procurement are that products are not feasible for online purchases and lack of supply from partners online.

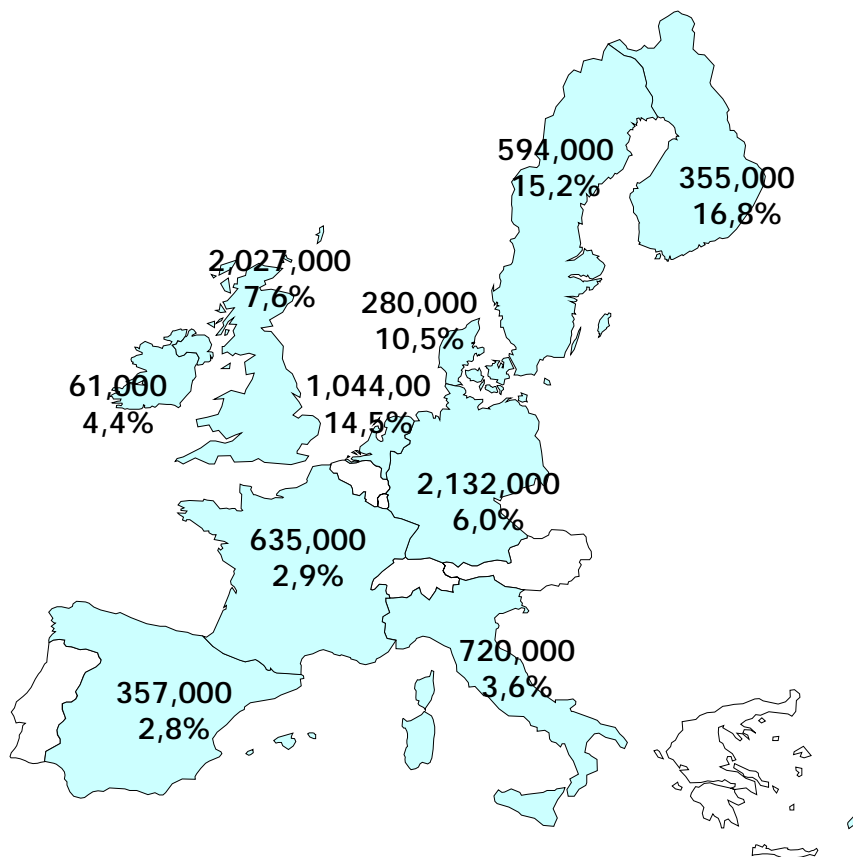
Barriers to online selling (in %)										
	Missing Customer Demand	No Need	Costs	Lack of Know-how	Dangers (data security)	Dangers (Fraud)	Product characteristics	External Conditions	Others	
Denmark	38,0	48,6	3,5	9,6	0,0	0,0	1,5	0,0	0,0	
Finland	15,1	30,0	2,3	0,0	1,9	0,7	42,3	0,0	4,9	
France	15,6	48,4	5,7	9,5	1,4	0,4	26,7	1,5	0,7	
Germany	26,6	42,8	7,6	4,9	0,6	0,3	35,0	3,0	0,0	
Ireland	20,9	50,8	2,6	2,0	0,4	1,7	15,8	0,2	16,9	
Italy	13,7	53,1	2,0	4,3	1,1	0,4	24,2	0,0	1,0	
Netherlands	16,5	14,2	3,7	4,1	3,7	2,8	53,7	5,5	4,1	
Spain	9,2	29,7	3,1	9,7	2,7	0,8	39,1	0,7	5,5	
<b>Sweden</b>	<b>8,7</b>	<b>35,0</b>	<b>1,2</b>	<b>4,2</b>	<b>1,8</b>	<b>1,3</b>	<b>40,6</b>	<b>1,1</b>	<b>0,8</b>	
U.K.	18,1	49,7	5,3	6,6	1,3	0,4	26,0	0,5	3,5	
<i>Total sample</i>	<i>17,9</i>	<i>41,7</i>	<i>3,9</i>	<i>6,0</i>	<i>1,4</i>	<i>0,8</i>	<i>29,9</i>	<i>1,2</i>	<i>3,3</i>	
<i>EU10 average</i>	<i>18,3</i>	<i>43,6</i>	<i>4,9</i>	<i>6,3</i>	<i>1,3</i>	<i>0,6</i>	<i>31,2</i>	<i>1,5</i>	<i>1,9</i>	
<i>Base: Establishments neither using nor planning to introduce online selling (n=2913)</i>										
©										
empirica 1999										

## 4. The main ECaTT findings on Telework in Sweden

### 4.1 Telework from the employees point of view

The number of teleworkers in Sweden is second best in Europe. The interest from non-teleworking employees is high, but telework is still a phenomenon for middle-aged men with a high level of education.

The number of teleworkers<sup>2</sup> in Europe today is more than 9 million. Sweden is among the best. Including supplementary teleworkers (spending less than one full day working from a place outside the office using ICT) 15,2 % of the Swedish workforce are practising telework. Sweden is far above the European average (4,03%), but still a bit behind Finland (16,8%).



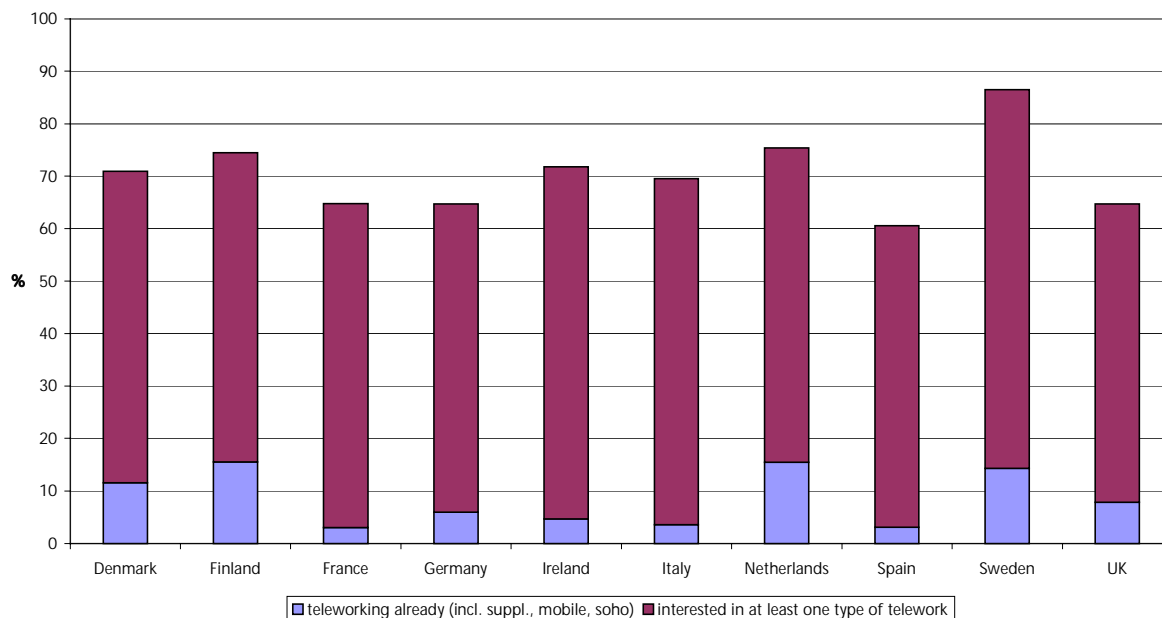
There has been several studies made in Sweden earlier on telework, which concluded that the rates were about the same between 1986-1994. About 250.000 people

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<sup>2</sup> The figure of 9 million teleworkers covers all kinds of telework, not only those regularly working a day or more per week away from the office at home or on the road using computers and online connections (6 million) but also those who do so less often, the "occasional" or supplementary teleworkers (3 million).

teleworked (homebased) during this period of time. According to the two latest investigations made (AKU97 and AKU98) the numbers increased dramatically between 1997-1998, when an almost 20% increase occurred<sup>3</sup>.

**Interest and Practice in Telework overall:  
In % of Workforce**



Even though the numbers of teleworkers around Europe generally still are low, the interest in telework among the workforce is extremely high. In Sweden 72% are interested in starting to telework. The EcaTT-study also shows that the teleworkability<sup>4</sup> of jobs in Europe is high, 65% of all jobs can be performed in a distance, from the perspective of the employees. Forsebäck et al (1998)<sup>5</sup> estimated in a Swedish survey this figure to 50%.

#### 4.1.1 Divisions between gender, age and educational level

Telework is more common among men than women and among people with a high level of education than with low levels. The average of age for teleworkers in Europe is 40 years. In Sweden it is considerably higher, 48 years.

This characterisation of the teleworker is in accordance to the earlier surveys made in Sweden (TCO94, "Distansarbetsutredningen", 1998 etc). One important factor discussed in these surveys is that the gender-differences concerning telework can be

<sup>3</sup> Distansarbetsutredningen, SOU 1998:115, page 58

<sup>4</sup> The job owner either works a minimum of 6 hours per week in an office job or at least 6 hours per week they perform tasks carried out at a desk or performs at least 6 hours per week using a computer.

<sup>5</sup> "Distansarbetsutredningen", SOU 1998:115, page 70

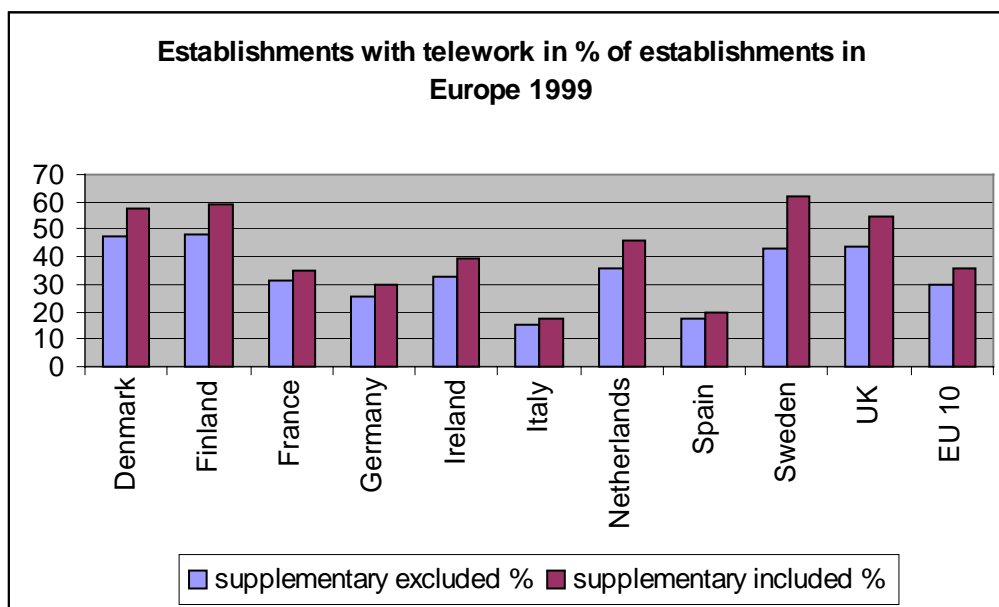
caused by the selection used: If self-employed are included the numbers of men will be higher. This is also a fact if supplementary teleworkers are included, because women who practice telework generally do it more hours a week than men do.

The relatively high age on teleworkers is in these surveys said to be a result of the fact that telework presupposes an established position on the labour market and a degree of security in ones profession.

## 4.2 Telework from the establishments point of view

*1/3 of European establishments are practising some form of telework. In Sweden the numbers are almost the double.*

Already 1/3 of European establishments practices one form of telework or another<sup>6</sup>. The figures for Sweden are a lot higher. Including supplementary teleworkers Swedish companies are in the lead in Europe with 62% practising telework.



Almost a 100% of the European companies employing more than 1000 people are practising telework. It has become a general fact that the bigger the company, the more telework is used. Only 12% of the smallest companies (0-9) allow their employees to telework.

Supplementary telework (spending less than one full day working from a place outside the office using ICT) have become rather common all over Europe, 1/4 of all businesses practice supplementary telework.

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<sup>6</sup> Homebased, SOHOs, mobile teleworkers, including supplementary teleworkers.

### 4.2.1 Time of practice

Compared to most European countries, telework is a relatively old phenomenon in Sweden. Almost 40% of all teleworkers in Sweden have practised for more than 5 years, while in countries like Italy and Germany the numbers have started to increase only the past two years.

### 4.2.2 Small projects, but managers are willing to extend

Most telework projects around Europe are rather limited ones, including between 1-9 employees. In Sweden almost 33% of the projects are of this size. Only about 4,5% of the project have more than a hundred people involved.

The interest among the establishments who are already practising telework to extend their projects or make them permanent is very high. In Sweden 55% of the companies will make their projects permanent.

### 4.2.3 Management and telework

The interest among European managers, in organisations that are not practising telework, to let their employees do telework is a lot lower than among the employees themselves. Only 37% show an interest in this.

An interesting aspect on management and telework-interest is being presented in a study from NUTEK7, which included 3.500 SMEs. The interest from the company-owner to start practising telework is related to his/her concepts of power and control. The managers that see power and control as important in their style of management are not interested in telework, while the ones that don't, consider it as an opportunity for their company. The attitudes to new forms of work are then a question of leadership in general and not just management in relationship to telework.

In spite of many efforts done to introduce telework in thinly populated areas it is still an urban/suburban phenomenon. The previously discussed study from NUTEK established the same.

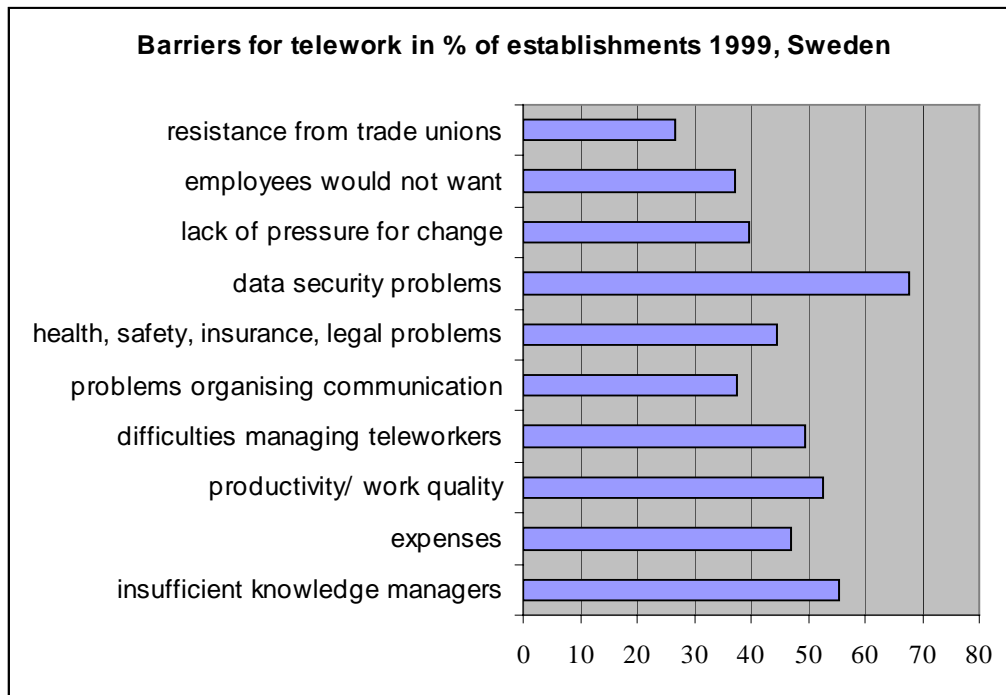
## 4.3 Barriers for telework

The most significant barrier to telework among Swedish establishments is "data security". This is interesting in relationship to the fact that data security does not seem to be a problem in the e-commerce context (only 1,8% of Swedish businesses see this as a barrier to online sales). Managerial issues ("lack of knowledge", "difficulties managing teleworkers") also gets high ratings.

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7 "Nyttan av IT – i småföretagarens ögon", NUTEK (Swedish National Board of Industrial and Technical Development, 1999

About every second of Swedish companies are of the opinion that telework might involve a risk for "lower productivity and work quality". Just as many are seeing costs as a problem.



## 5. Conclusions

### 5.1 Electronic commerce

Swedish households and businesses are among the best in Europe in most of the investigated areas in the ECaTT survey. PC penetration, access to the Internet and use of e-mail is high in Swedish households. One important factor for these numbers is possibly the so-called "PC-reform", which means that an employer who equips an employee with a PC for private use gets a tax deduction. This is an example of the broad impact that a public measure might have. The reform has resulted in a dramatic increase in the number of PC:s and internet-connections in Swedish households. It has also resulted in a more equal spread among larger groups in society and most likely it has had a significant impact on the industries, as so far as it has increased competencies in the workforce.

Also Swedish businesses have high numbers in the number of PC:s and Internet connections, but some cause of worry is the fact that Swedish businesses use the possibilities of online sales to a rather low extent and that the rates will be below the European average in two years.

It is very gratifying that a closure of the gap between sexes in all high-use-countries is expected in the years to come. This will be a fact also in Sweden. The spread between ages in use of the Internet is fairly equal in Sweden, though the uses in the age group >64 are very low. There are some interesting initiatives taken in Sweden in this area, i.e. SeniorNet8, which is a non-profit organisation founded in 1996 to promote the use of Internet by older citizens. The share of less qualified people that has got access to the Internet is rather high in Sweden. Again, the "PC-reform" has been an important factor.

Electronic commerce is still in its initial stages in Europe, also in the frontrunner-countries. Swedish households are in the lead in shopping, but still there has been no real breakthrough. Finland is far ahead of Sweden in online banking, but according to the survey Sweden will have reached an equal level in 2001.

To a higher extent Swedish customers use e-commerce sites to perform searches for information about prices and suppliers, than to order and pay for goods. This means that the commercial web has a supplementary function in Sweden. The decision to buy is taken through information gathering on the web, but the purchase is performed physically, where the product can be judged.

Swedish households also have an obvious lack of confidence to online payment methods, such as sending their creditcard number over the Internet. The legal framework and reliable technical solutions must be dealt with on this area.

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8 <http://www.seniornet.se/>

One reason for the lack of confidence might also be that a very low amount of Swedish businesses are using online sales on the business-to-consumer side. The numbers are low all over Europe, but with the high percentage present on the web in mind, it is quite surprising that the Swedish companies are only just above the European average.

Lack of security is often said to be a key factor for businesses not starting online sales. The ECaTT-study disputes this: Only 1.8% of Swedish establishments mention this as a key barrier. Instead "product characteristic" (products are not suitable for selling on the web) and "no need" are arguments against online selling. There are questions that could be discussed around this: Are really only certain products suitable for online sales? Or is it traditional business-models that don't match an online existence? These arguments can be symptoms of lack of awareness of what the internet/e-commerce is and can be used for.

There are many initiatives taken in Sweden from actors both on national and regional levels to promote e-commerce on the business side, but more or possibly different actions may have to be considered.

A recent study<sup>9</sup> from NUTEK (Swedish National Board of Industrial and Technological Development) assumed from conceptions of ICT, in contrast to other studies, which often are measuring more quantitative facts. The study concluded that businesses are not a homogenous group. Different businesses use ICT out of different conceptions, some with the aim of development and growth in mind, others just to administer the daily work in an efficient and rational way. Therefore we need to work on attitudes and conceptions, as much as on the implementation and increase of ICT.

## 5.2 Telework

The number of teleworkers is increasing in Sweden; almost 600.000 (15%) people are now practising new forms of flexible work. The interests for telework is still high (72%) among the workforce, just as it has been established in previous Swedish studies.

Telework is still a workform dominated by men, in their middleages (average age in Sweden, 48 years) and with a high level of education. In Sweden a majority of the teleworkers have been practising home-based work for 3-10 years. In most other European countries telework is a quite recent phenomenon.

Swedish businesses have the highest degree of teleworking projects in Europe, 62% have teleworking employees. Though most projects are limited (1-9 employees) in size, a majority of businesses that have tried telework are planning to make the projects permanent or to extend them.

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<sup>9</sup> Nyttan av IT – i småföretagarens ögon (The use of ICT – in the eyes of the SME company owner), 1999. NUTEK (Swedish National Board of Industrial and Technical Development), Stockholm

The general interest among European managers to let the employee's telework is much lower than the interest among the employees themselves. Only 37% show an interest in this. The key barriers for telework among Swedish companies that have not been practising telework are data security and managerial issues. This, and the fact that the majority of establishments that have been using teleworkers will make their projects permanent or extend them, implies that there is a great task to inform and educate, on first hand, managers on the possibilities of new forms of work.

Telework is no longer just synonymous of home-based work; instead it includes all kinds of flexible work with the help of ICT. It can be sitting on a train with a laptop, sending SMS-messages on the mobile phone, as well as sitting at home downloading documents from the company server. Such a broad definition of the concept is important if we want telework to develop to an organisational form that companies and institutions will regard as a quality-raising fact, more than a privilege to male, established and elderly employees. If we focus on the possibilities of getting *closer* to customers and markets, instead of, as often done, on the *distance* to the office, it is easy to see what we can do better (and which tasks can be performed) when practising telework. In social work i.e., there are many possibilities with flexible ICT-solutions that not yet have come to a broad use. In a mid-Swedish town the home aides are equipped with smart cards to report time and tasks executed. This means reduced office-time and more time with the patients and therefore increased quality of work. All work in all organisations contain such, by telework, quality-raising possibilities, for the customers as well as for the employees themselves. Also, if we start to think of telework in this sense, it will not be a marginal phenomenon for a few 9 million Europeans, but work as work is being naturally performed by anyone.

## 6. Recommendations

6.1 Awareness raising

6.2 Education

6.3 Pilot programs

6.4 Government policies

6.5 Telecommunications policy and pricing

6.6 Possible use of incentives

# ANNEX

## 7. Projects and initiatives in SWEDEN on TELEWORK

### Overview

#### Projects and Initiatives at National Level

This overview is not exhaustive but gives a good overview of the type of initiatives relating to telework on a National level.

<i>Description and Objectives</i>	<i>Status / Impact / Achievements / Results</i>	<i>Evaluation / Assessment</i>
<p>"The official report on telework"  <i>(Distansarbetsutredningen, 1998, SOU 1998: 115)</i> was appointed to map the occurrence of telework in Sweden and the consequences that it will have on work and the worksituation. The report also looked into the legal aspect of telework and concluded that the legal obstacles are few.</p>	<p>The legal changes that the report proposed have been referred for consideration and are during spring 2000 managed by the ministry of industry.</p>	-
<p>The Swedish government is working on the national Information Technologies policy, which will function as the foundation for future national decisions in the ICT area. The policy will concern, among other things, Telework, Electronic Commerce, Infrastructure, Information Technology in the society and in the</p>	<p>The proposal will be completed in march -00.</p>	-

public sector.

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## 7.1 Projects and Initiatives in Counties of Sweden

This overview is not exhaustive but gives a good overview of the type of initiatives relating to telework on a regional level.

<i>Description and Objectives</i>	<i>Status / Impact / Achievements / Results</i>	<i>Evaluation / Assessment</i>
<p>"The Network for Telework in Kalmar Community and the island of Öland" (Nätverket för distansarbete i Kalmar Kommun och Öland) works to spread information about and promote telework to businesses as well as employees. The goal is to make possible for people and businesses to stay in the region and to entice competencies from other parts of the country. Web-site: <a href="http://www.oland.nu/distansarbete/">http://www.oland.nu/distansarbete/</a></p>	<p>The network has set up its own web-site with information on telework, technical support for teleworkers etc. One pilotproject is set. Results: The network today contains about 500 members spread over the country, "Telework-offices" is established in Kalmar, Mörbylånga (in the municipalities libraries) and one in Löttorp. The project is also engaged in Invest in Swedens callcenterproject, and has been a part of an establishment made in Borgholm which has employed 15 persons so far.</p>	<p>An avaluation is proceeded by the university of Kalmar.</p>
<p>"Telework in the county of Västerbotten" (<i>Distansarbete i Västerbotten</i>) is supporting in teleworkprojects in public authority, businesses in six different municipalities.</p>	<p>The project was to end dec-99, but has been prolonged till May -00. The project has had 21 participating teleworkers. After initial technical problems the project has been succesful. All participants will continue to telework after the project ends in May 2000. A manual of management in telework-project has been produced.</p>	<p>The project has resulted in a strategic policy-document on telework both in the municipality of Väannes, and also in the County Council of Västerbotten.</p>

<p>"Competence for telework"  <i>("Kompetensutveckling för distansarbete")</i> is a project that develops models and methods around telework. 10 businesses in different parts of the Norrbotten-region in the north of Sweden are introducing telework.</p>	<p>All technology is implemented at the participants.</p>	<p>A midterm-evaluation is under way.</p>

## 7.2 Projects and Initiatives by Trade Unions, Associations and Organizations

This overview is not exhaustive but gives a good overview of the type of initiative related to telework by the above organizations.

<i>Description and Objectives</i>	<i>Status / Impact / Achievements / Results</i>	<i>Evaluation / Assessment</i>
<p>"The Swedish Teleworking Association" is working to inform about and consult on telework-related issues. The organisation has its own web-site at: <a href="http://www.distansforum.se">http://www.distansforum.se</a></p>	<p>Seminars/information meetings, a web-site with a lot of information.</p>	-
<p>"The Telework Lab" (Distanslabbet): is an initiative from The Swedish Confederation of Professional Employees (TCO). The Lab is developing new and qualified environments and technical solutions for homebased work.</p>	<p>The project has so far published two reports on visual qualities in telework workplaces.</p>	-
<p>"The FRU-network" is an initiative within the Swedish Trade Union Confederation to build local networks between workplaces for the exchange of good examples of teamwork design. The project is testing new technologies: Web pages, shared 3D environments on the Web,</p>	<p>The project has built a 3-D based prototype on virtual collaboration at the Active Worlds-web, where meetings, discussions and exhibitions can be held.</p>	<p>An evaluation is underway.</p>

<p>QuickTime, QuickTime VR and video-conferencing software. Much of the design effort will focus on the new compositional and narrational opportunities of these technologies. Thus, the project spans the fields of Computer Science, Cinema Studies, and Behavioural Science.</p>		
<p>"Masugnen": The project began as an initiative from the municipality of Lindesberg who started courses for future teleworkers, including marketing and sales, PC and software training, usage of video conference equipment and experience of teleworking.</p> <p>The Dial insurance company – situated 250 km away - was soon contacted to let the students carry out sales activities and market surveys in between training activities. The test turned out very successful, and Dial made the project a permanent teleworking activity within the company.</p>	<p>Today 18 teleworkers are engaged in the Lindesberg office. The education centre called "Masugnen", in which the first teleworkers were educated, is today still running education for teleworking. Masugnen is also educating SMEs in computer usage and ICT, arranging seminars and conferences.</p>	<p>The telework-project at Masugnen has resulted in a permanent solution for the Dial insurance company.</p>
<p>A network of women within "Ljusterö Enterprising Association" has established an administrative service company on Ljusterö island in the archipelago of Stockholm. The aim of the company is:</p> <ul style="list-style-type: none"> <li>- to create work for women</li> </ul>	<p>Though the use of ICT the project has enabled people to work and stay on the island with strong support and backing from the people living on the island. A broadband connection to the mainland has been set up during 1999. This has made the services offered even more</p>	<p>-</p>

<p>- to contribute to environmental improvement by reducing commuting by car</p> <p>- to give people the option to work from the island and maintain the high quality of life by working close to nature, family and friends.</p> <p>The company offers administrative services, telephone services, web-site production, IT education, layout etc.</p> <p>They also supply fully equipped working places for SMEs for longer or shorter periods of time.</p> <p>Part of the location is used by a mainland -bank that offers all banking services. One can even meet the personal banking advisor through IT media.</p>	<p>attractive for the company's customers.</p>	
<p>"Telematics 2001" is a research program ran by KFB and TELDOK. The aim is to look into the consequences telework/flexible work will have on the society, by making experience available.</p>	<p>Research and bookpublishing.</p>	<p>The project has had great importance from publishing a succession of books around among other things telework.</p>

## 8. Projects and initiatives in SWEDEN on ELECTRONIC COMMERCE:

*Overview*

### 8.1 Projects and Initiatives at National Level

This overview is not exhaustive but gives a good overview of the type of initiatives relating to electronic commerce on a National level.

<i>Description and Objectives</i>	<i>Status / Impact / Achievements / Results</i>	<i>Evaluation / Assessment</i>
<p>The project "Electronic Commerce in Sweden" (SVEA) was started autumn -99 by GEA ("The Community for Electronic Commerce") the organisation is a conglomerate of national industry and branchorganisations (Svekom, LF, Industriförbundet, FR, Statskontoret, Swedish Commerce of trade). The conglomerate has three major objectives: 1) Educate and inform on the implications of electronic commerce in public and private sector 2) Work for the setting of standards 3) Influence national and international regulations and other infrastructure in the e-commerce area</p> <p>The SVEA project is gathering information on</p>	<p>Informationmeetings, workshops and conferences on the subject of electronic commerce.</p>	<p>Publicity in the media has made GEA known to the public.</p>

<p>where and what type of local and regional work is done in the e-commerce area. SVEA will support these initiatives with professional knowledge and information material. SVEA is also promoting work in creating softwareproducts for SME ´s.</p> <p><a href="http://www.gea.nu">http://www.gea.nu</a></p>		
<p>The Swedish government is working on the national Information Technologies policy, which is supposed to be the foundation for future national decisions in the ICT area. The policy will concern, among other things, Electronic Commerce, Infrastructure, Telework, ICT in the society and in the public sector.</p>	<p>The proposition will be completed in march.</p>	<p>-</p>
<p>SMELINK:</p> <p>Started as a regional project on awareness of the use of ICT. Investment from national bodies and corporate financing has made smelink a national project. Students in 14 Swedish universities are active in spreading the use of ICT to SME ´s in the "SME-navigators"-project. Smelink has also created a webbbpage with, among other things, accesslinks to the European tenders database, TED.</p> <p><a href="Http://www.smelink.se">Http://www.smelink.se</a></p>	<p>The website has about 20.000 visitors per month. "The SME navigators" has done a great number of visits in SMEs in a large number of regions throughout the country.</p>	<p>-</p>

## 8.2 Projects and Initiatives in Counties of Sweden

This overview is not exhaustive but gives a good overview of the type of initiatives relating to electronic commerce on a regional level.

<i>Description and Objectives</i>	<i>Status / Impact / Achievements / Results</i>	<i>Evaluation / Assessment</i>
<p>"Electronic commerce in Västerbotten". The county of Västerbotten is situated in northern Sweden. The project is made as a joint venture with public and private sector on a regional level. The local level is also included. The purpose is to spread the use of electronic commerce in companies and the public sector.</p>	<p>Seminars and courses have been held. Internal inquiries in the participating - county council, municipalities and a few companies – organisations. Pilotinstallations of the software used has been carried out.</p>	-
<p>"Electronic commerce in Norrbotten" is a project run by the regional organisation for the promotion of ICT in the county of Norrbotten. The project is divided into two parts:</p> <p>The purpose of the first part is to introduce e-commerce to the companies already selling to the public sector.</p> <p>The second part concerns Internetbased commerce. The goal is to create good conditions for at least 15 companies to sell products and services via the Internet. The companies are testpilots and will be used as rolemodels for other companies in the region.</p> <p>The companies are</p>	<p>Around forty companies have been involved in electronic commerce in part one. 15 companies have started Internetbased commerce through the project.</p>	<p>The project is still in its initial stages and has not had any evaluations.</p>

<p>introduced at  <a href="http://handla.i.norrbottn.se/">http://handla.i.norrbottn.se/</a></p>		
<p>"Blekinge electronic commerce in SME´s" is a project divided into many different parts. The main purpose is to make companies and the surrounding society part of the new Information Society. Through seminars, education, conferences, best practises, stationary telecottages and creating new methods and software the organization "ITBlekinge" will introduce electronic commerce on a broad range. Therefore different kinds of electronic commerce projects are running at the moment in Blekinge.</p>	<p>Several projects have been ended and new started: "Network for entrepreneurship" is a business-network in the region, education for SMEs and the public service is a continual activity. SMEs are offered to be testpilots for new e-commerce solutions. Etc.</p>	<p>IT-Blekinge has been working from an information society-concept. All citizens and the whole of society shall be involved. Since 1995 the unemployment in the region has decreased radically, the number of IT-related companies has been multiplied etc. The regions concept has been very successful.</p>
<p>ECITT. A project in different European regions. The project is directed to SME´s employing less than 50. The 150 participating companies have access to business- and technical expertise during the project. The purpose is to combine ICT with business.</p> <p>Goal: At least 40 companies shall have a business- and Informationtechnology-strategy. 12 shall have implemented it.</p>		-

### 8.3 Projects and Initiatives by Trade Unions, Associations and Organisations

This overview is not exhaustive but gives a good overview of the type of initiative related to electronic commerce by the above organisations.

<i>Description and Objectives</i>	<i>Status / Impact / Achievements / Results</i>	<i>Evaluation / Assessment</i>
<p>Internet banking within SEB:</p> <p>The banking group started already in December 1996 with the opening of its Internet Office for private customers. In October 1997 the SEB opened the first company Internet Office. This one was a copy of the first one with some adjustments according to the company's need. Customer are able to:</p> <ul style="list-style-type: none"> <li>-to get account information</li> <li>-to make domestic payments and transfers</li> <li>-to make foreign payments</li> <li>-and trading of stocks and funds</li> </ul>	<p>There are today about 380.000 customers, by which more than 20.000 are companies, at the SEB-bank.</p>	<p>The SEB-solution has been a great success and will be introduced in 5 European countries. The goal is set to 5 million customers in 2004. The future goal is to establish e-commerce to SEB:s services in a pan-european portal for e-commerce.</p>
<p>B`NAISE: is a softwareproduct for tenders in the city of Gothenburg. The local purchasers are able to make orders electronically to all companies in the database. The software is raising efficiency in purchases, rationalises the procedure of trading and is lowering the logistics costs.</p>	<p>Several major delivery-companies are using the e-commerce possibility that B`NAIS can offer.</p>	<p>The solution has been well accepted by large delivery companies. For a more widespread implementation more work must be done.</p>

<p>IT-Link</p> <p>The purpose is to create a complete database of experts in different specialist areas. The database includes experts from around the world in the fields of plastic industry, chemical industry and manufacturing industry. The purpose is to broaden the companies networks, to give information in different areas of speciality and to improve the companies market analysis</p>		