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Information society in Sweden

What we are doing and our plans.

(Session 3)

Abstract: The last few years, when computers, mobile phones, Internet connections have started to be common even in households and not only as working place equipment, it is obvious that the habits of seeking information also starting to change. In Sweden there are, as there are internationally, great needs of statistics on information society and information technology (IT). Statistics Sweden has not the whole responsibility of the statistics on Information society. The Swedish Board for Technological Development (NUTEK), Swedish Institute for Transport and Communication Analysis (SIKA) and Statistics Sweden have responsibility for different areas.

The needs of information about the IT-sector in Sweden are:
- *The production, the service industries and use of IT equipment*
- *How IT is used*
- *The effects of IT*
- *International comparison*

The experience from surveys in Sweden are:
- *Difficult to define the IT sector*
- *Difficult to decide Which kind of education that is IT-training*
- *Difficult to separate IT products and services from other products and services*
- *In some of the sectors there are only few big active enterprises*

At the moment we are in Sweden planning for or running five new surveys:
- *A benchmarking survey, e.g. an inventory of which statistics are produced in other countries.*
- *A survey about the use of IT.*
- *An update of a survey about Electronic industry and IT-related services.*
- *A survey on telecommunications.*

- . *A survey on data communications.*

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1 Introduction

The last few years, when computers, mobile phones, Internet connections have started to be common even in households and not only as working place equipment, it is obvious that the habits of seeking information also starting to change. In Sweden there are, as there are internationally, great needs of statistics on information society and information technology (IT). There is also lack of statistics in some areas, especially on how the new technology is used and on the habits of seeking information.

OECD and other international organisations have high priority of statistics on the information society and have started different projects and working groups with the task to make the statistics comparable internationally and to take initiatives for new statistics in this area. Sweden is much involved in this international work.

Information society is a very big area including manufactory, distribution and services of goods like books, newspapers, radio, telephones, television sets and of course computers and other IT-equipment. It does not only cover many different goods and industries, it also covers many different kinds of statistics as labour statistics, economic statistics and individual statistics. All those aspects make it difficult to have a whole picture over the information society.

Statistics Sweden has the focus on describing the IT-society in a relevant way. It is also for this area the needs of new statistics are greatest. This paper will try to describe the work we are doing in Sweden to improve statistics in this area and it will try to:

- Describe Statistics Sweden's role in the Swedish statistical system
- Describe the major needs Statistics Sweden sees in the area
- Give example of what we do in the IT-sector
- Describe experience from our surveys
- Give example of surveys we are planning for the near future

2. Statistics Sweden and its role in Swedish statistical system in the IT sector

Statistics Sweden has not the whole responsibility of the statistics on Information society. The Swedish Board for Technological Development (NUTEK), Swedish Institute for Transport and Communication Analysis

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(SIKA) and Statistics Sweden have responsibility for different areas. The Department of Communication has also influence on what kind of statistics that should be done.

This situation demands a lot of discussions between all parts if the statistics will show a picture over the IT society. But the work has so far showed progress. Statistics Sweden is the institute which produces most of the statistics, often ordered by the other institutes.

Because the IT sector covers many different industries and information is needed from many different kind of statistics. The need of internal dialogue in Statistics Sweden between departments/statistical programs is also very important.

3 Needs of information about the IT-sector

The use of computers and other IT-equipment has increased rapidly the last few years (see also chapter 4.1). There are not any signs that the rapid development will not continue in the nearest future.

One consequence of the increase is that the gaps between existing statistics and the needs for statistics have been enlarged. In contacts with our most important users, they express a lack of good and relevant statistics about the new technology and about the techniques of seeking information. In other parts of the Information society Statistics Sweden do not have the same demands. The users especially want better statistics in these subjects:

- **The production, the service industries and use of IT equipment:** In this area we already have some statistics (see chapter 4), but in some areas, especially about services there are lacks.

- **How IT is used:** What are our habits when we want information and how are they changing with the new techniques? How large is the access to computers and how are they used? These are example of questions where answers are requested.

- **The effects of IT:** The environment and health effects of the new technology are areas which need to be investigated.

- **International comparison:** In Sweden, as internationally, there are great needs for international comparisons.
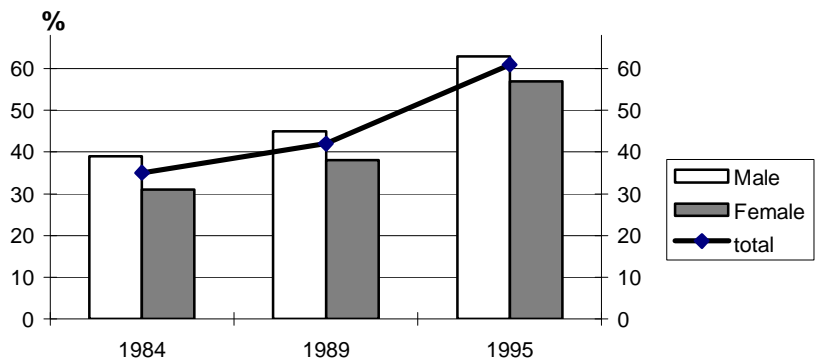
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4 Example of surveys we have done

4.1 Use of computers

In 1995, more than 3.1 million (61%) people, in the age of 16 to 64 years, were computer users in Sweden. This is an increase with nearly 30 per cent the last 10 years (see Graph 4.1). At work, just over 50% of those in employment use computers (Graph 4.2). Men use or have used computers to a greater extent than women, both at work and at home. At home, around 30 per cent of the men and only 22% of the women were computer users, 1995.

Graph 4.1
*People who use or have used computers, **both at home and at work**, in Sweden in age class 16-64 years, per cent*
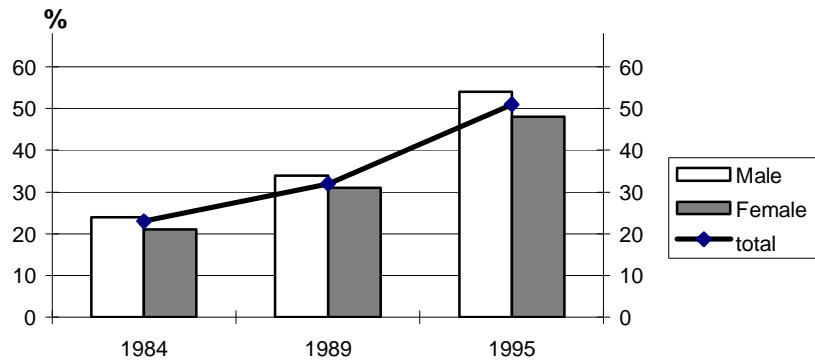

Source: Statistics Sweden

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Graph 4.2
*People who use computers **at work** in Sweden in age class 16-64 years, per cent*


Source: Statistics Sweden

There are also differences in using computers between age-groups, between different education levels and between different socio-economic groups:

■ The age-group 25-35 years is the age group which uses computers at greatest extent. About 70 per cent are using computers either at work or at home. At home, the youngest age-group, 16-25 years, constitutes the highest proportion.
■ Wage-earners (42%) use computers in a much lower extent than senior salaried employees (92%).
■ In general, the use of computers is higher if the education level is higher.

About 200 thousand people work regularly at home by agreement with their employer. Of these about 60 per cent have pedagogical work. But the most common areas for using computers in the home are own writing, managing private finances, club activities and suchlike following by use for games and hobbies etc.

The number of persons with IT training has more than trebled since 1985, from nearly 15 thousand to nearly 49 thousand persons (Graph 4.3).

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Graph 4.3
Number of IT-trained persons in Sweden

Source: Statistics Sweden
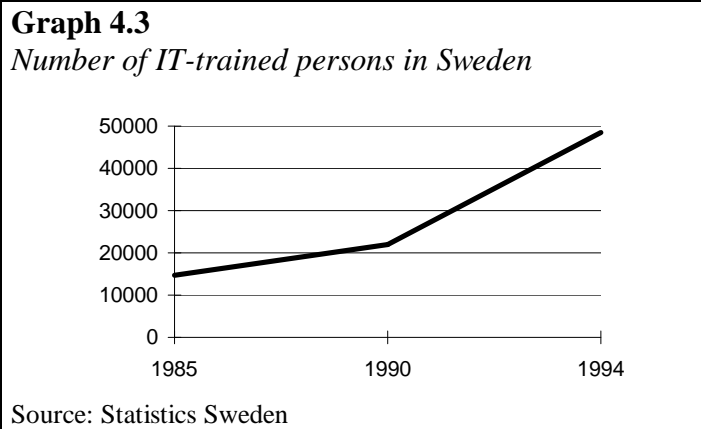
In secondary school there were 19 pupils per computer 1995, which is half as much as it was 1993.

Use in organisations:
- 1995, about 80% of those in employment worked in a computerised workplace. In 1989 the figure was 63%.
- Within the County Council sector, the use of computers has trebled in six years time. The government sector has the largest proportion of computer users (about 83% 1995).
- Just under half of all entrepreneurs use computers. Of these, the men use them to a much greater extent than women.
- 78 per cent of government authorities and County Councils and 60 per cent of the municipalities had internal e-mail 1995.

4.2 Retail Trade and services

The retail trade with electronic products has a much greater increase in its sales from 1994 to may 1997, then the rest of the retail trade. While the retail trade overall had an increase with about 5-6 per cent, the retail trade with durable goods had an increase with 13-15 per cent and the retail trade with home electronics had an increase with more than 25-30 per cent (Graph 4.4)

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Graph 4.4
Sales in Retail trade in Sweden, seasonally adjusted series
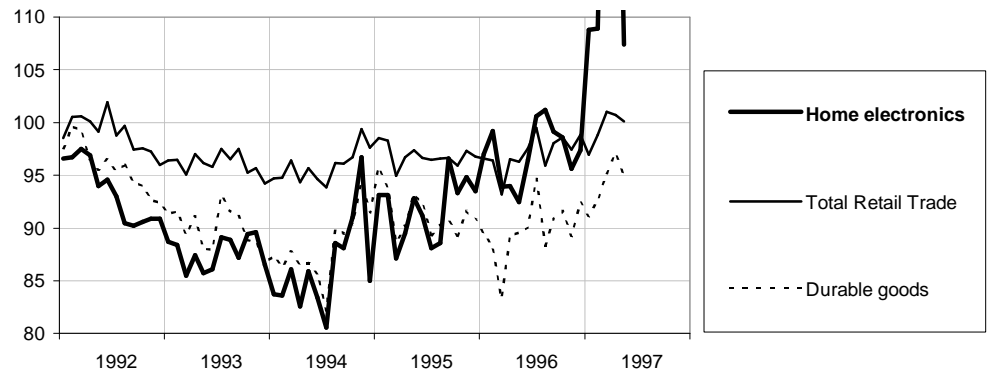
Source: Statistics Sweden
Retail trade with home electronics is a fusion of the retail trade industries (SIC92): 52.452 Retail trade with radio and TV, 52. 493 Retail trade with computers and office equipment and 52.494 Retail trade with communication equipment.

Before 1994 it was not common that computers and computer equipment were sold in the retail trade. Most of the computers were sold to enterprises or organisations and the selling enterprises where often classified as another service industry.

1994 ordinary radio an TV shops started to sell mobile phones and computers in a greater extent when the prices on these goods started to decrease and the demand from the households started to grow. From 1994, the number of specialised computer and telecommunication stores increased from around 1 000 to nearly 1 500.

The number of mobile phone accounts increased by about 70% between 1993 and 1994 to nearly 1.4 million, which is more than three times what it was 1990.

4.1 Pilot survey on Telecommunications.

1996 Statistics Sweden ran a survey about telecommunications for the reference year 1995. In the late eighties the telecommunication sector was deregulated. Until the deregulation the economic statistics was made by the Swedish Telecom (Televerket, later TELIA) who was the only actor on the market. As a result of the increased competition Televerket/TELIA stopped making the statistics 1988. Between 1988 and 1995 there has not been any statistics at all in this area.

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For the reference year 1996 we run a survey on the same sector. This is a combination between a following up of the first survey and an anticipation to a pilot survey by Eurostat. We run this survey in co-operation with Eurostat, SIKA and the Swedish National Post & Telecom Agency.

The survey of 1995 gave among other things the following results:

There were about 110 enterprises with totally 19 900 employed, full time equivalent. The largest sub-sector was Network operations with 64 enterprises and 28 100 employed.

The total turnover was 49 900 millions of SEK. The value added was 21 000 millions of SEK, which was approximately 1 to 1,5 per cent of GNP.

There also are results from the survey in Annex 1.

5. Experience from our surveys

In the IT sector, as it is in other sectors we deal with subjects which reach over many different activities Therefore it is difficult to investigate the whole flow of IT products and services. Some of the problems we have recognised are:

Difficult to define the IT sector: To make the frame or in other words, which activities of NACE Rev.1 or which products should be included in the IT sector. See the Swedish suggestion of breakdown by activity in Annex 2. We have also done a suggestion of breakdown of products, but that is not yet translated to English.

Difficult to decide Which kind of education that is IT-training: A course about using computers does not need to be a course in IT-training or a course in another subject could involve a lot of IT-training.

Difficult to separate IT products and services from other products and services: Enterprises have difficulties to split the answers into the levels we/the users demand.

In some of the sectors there are only few big active enterprises: One example is TELIA which is the absolutely dominating enterprise in the telecommunication market. The Swedish law of secrecy says that, no figures from an individual enterprise should be able to be found from the statistical

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figures. This gave us many empty cells in our tables because of TELIA's domination in some parts of the telecommunication market.

6 What is Statistics Sweden doing and what are the plans

Today Statistics Sweden cannot get a comprehensive picture of the scope of IT among people, organisations and society. Statistics Sweden therefore feels that it is imported to produce different good-quality statistics which describe different aspects of IT.

Apart from the development work which is already taking place with respect to statistics about production, trade and R&D as well as tele- and data communications, we propose several investigations into use of IT which should be done regularly, e.g. continuation and development of previous studies of computer use, investigations of distance work and study, the use of IT in organisations and the working environment in the context of computer use.

We should also start development work about information habits, in order to study how people gather information. It is also important to illuminate environmental and health effects, e.g. the use of material and chemicals in IT products.

At the moment we are planning for or running five new surveys:
- Together with the Department of Communications we plan a benchmarking survey, e.g. an inventory of which statistics are produced in other countries.
- Together with NUTEK and SIKA we plan for a comprehensive survey about the use of IT.
- We are planning an update of a survey about Electronic industry and IT-related services.
- In co-operation with Eurostat and SIKA are we running a survey on telecommunications.
- We run a survey on data communications.

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Annex 1: Result from the telecomunication survey

Telecommunications NACE Rev 1. 64.2

Number of enterprises in the population	194
- of which wrong classification	64
- of which without any activity	6
- of which non response	16
The result is based on answers from 108 enterprises	108
Number of people employed (full-time equivalent)	29 913
Total turnover, Millions of SEK	49 851
Total costs, Millions of SEK	39 517
Value added, Millions of SEK	21 157

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Telecommunications: breakdown of operating income, per cent and Millions of SEK for 1995 in Sweden.

Type of service	Share of total turnover, %	Millions of SEK	Volume in traffic minutes, thousands of minutes
Public telephony services:	**45**	**22 278**	Total traffic min: 31 749 779
- of which companies	(48)	(10 646)	of which:
			Traffic min in national traffic: 30 710 611
			Traffic min for calls abroad: 1 039 168
Data communication services in dedicated public networks:	13	6 737	
Mobile telecommunication services:	13	6 398	Total traffic min: 1 601 093
- of which companies	(77)	(4 952)	
Interconnection services:	6	3 169	Total traffic min: 1 863 688
Communications management services:	4	1 907	
Value added telecom services:	-	135	
- of which Internet, %	(93)	(126)	
Network operation (the smaller companies)	1	221	
Radio- and TV-broadcast operation:			
Cable-TV services, totally	3	1 413	
of which: - installation of network and basic offer	(29)	(403)	
.... - supply of pay-TV	(59)	(832)	
- other	(7)	(99)	
Other radio- and TV-broadcast services and other radio- and TV-services	2	1 188	
Other telecom/network services	-	36	
Other services close at hand (the smaller companies)	-	46	
Sale of goods- and services related to telecom:			
Sale of telecom equipment	11	5 306	
Other telecom related services	-	40	
Other revenues:			
Income from rents	-	107	
Licences and royalties	-	132	
Other sales of services	1	323	
Remaining operating revenues	1	355	
Received subsidies	-	18	
Part sum	**100**	**49 809**	
Undistributed sum	-	42	

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Total turnover	**100**	**49 851**

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Annex 2: Enterprises by economic activity in the IT sector

The report *The electronics industry and ICT-related enterprises in Sweden 1996* follows the Swedish Standard Industrial Classification 1992, SNI92, which is harmonised with NACE Rev.1.

THE ELECTRONICS INDUSTRY
30.010	Manufacture of office machinery
30.020	Manufacture of computers and other information processing equipment
32.100	Manufacture of electronic valves and tubes and other electronic components
32.200	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
32.300	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
33.200	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
33.300	Manufacture of industrial process control equipment

IT-RELATED SERVICE COMPANIES

Commerce of IT-products
22.33	Reproduction of computer media
51.142	Agents involved in the sale of office machinery and computer equipment
51.432	Wholesale of radio and television goods
51.64	Wholesale of office machinery and equipment
51.653	Wholesale of telecommunication equipment and electronic components
52.452	Retail sale of radio and television sets
52.493	Retail sale of computers, office machinery and computer programmes
52.494	Retail sale of telecommunication equipment
71.33	Renting of office machinery and equipment including computers

Telecommunications
64.201	Network operation
64.202	Radio and television broadcast operation
64.203	Cable television operation

Computer consultancy and other services
72.1	Hardware consultancy
72.201	Software consultancy
72.202	Software supply
72.3	Data processing
72.4	Data base activities
72.5	Maintenance and repair of office, accounting and computing machinery
72.6	Other computer related activities