



1. Introduction to the *”TELDOK Yearbook 1997”*

1.1. What is the *”TELDOK Yearbook”*?

Is a yearbook really possible in a world of technological development moving *”faster than its own shade”*? Is it possible to achieve? The answer is *”no”* in one sense, *”yes”* in another. Thus, we have adapted to some extent to the Internet world of fast facts by first introducing the *”TELDOK Yearbook 1997”* in a version for the World Wide Web, providing facts up to May 15, 1997. A printed version will follow, with last data entry by June 30, and early this autumn a second, updated Web-version is planned to follow.

First of all, more than a regular yearbook, this, the sixth issue of the *”TELDOK Yearbook”* is becoming a permanent experiment of catching up with several highly differentiated and rapidly moving developments, and of trying to draw a still picture of these changes while they occur, in such a way that the reader/user of the *”TELDOK Yearbook”* at least gets a feeling that there are some stable ground to stand on, after all. Can this be achieved? Only the user of the book can respond to the question.

The developments covered in this document are the results of ever expanding human imagination and creativity, i.e. the imagination and creativity of the users, always creating the unpredicted, the unpredictable, and the unexpected. How does any editorial team cope with such challenges? The news services providing viewers/listeners/users with information about the presidential elections in the US on the Internet experienced something of the same: There were ten times as many visitors to the home pages of the networks during the count of the votes, than on any normal day. And many users were pretty upset by the fact that the home pages were not up to date — to the minute! Slow, sometimes static, facts have to be adapted to a new very fast medium, changing by the minute. How?

Should one choose to be provocative in this context, one would, of course, choose to provoke the politicians. Politicians in their function as decision makers on subjects affecting all of us seem to be about the only human beings who do not understand that telecom and IT changes not once every 10 years, not even once every 5 years, or once a year, but several times a day. Technologies change: the geographical dissemination of information and communication technology is changing — the numbers of telecom users, Internet users, satellite TV users, mobile phone users, etc. — are changing, i.e. increasing from day to day. Terminologies change: Ten years ago, in 1987, *”telematics”* was the buzz word of the industry; then followed *”information*

technology”, IT; last year, we were on to ”information and communications technology, ICT; now, we are discussing ”information society technology”, IST.

The effects of the masses are neither easily understood nor explained. Neither is human creativity and the imaginative use of the information and communications technologies.

Tounge in cheek, the best description of what the ”*TELDOK Yearbook*” really is, is to compare it to a dish that starts out by your looking into the pantry to find out what kind of ingredients you have and then decide what kind of dish you will make.

1.2. The Objective of the ”*TELDOK Yearbook*”

The objective of this sixth issue of the ”*TELDOK Yearbook*” is to try to define Sweden’s place in an ever more complex telecommunications and information technology world, in the information society, and to put our country firmly on the international IST map. In order to do so, we have to look at the global situation as it is presented by some of our most important national and international institutions, such as Statistics Sweden, the OECD, the EITO Task Force, and the British DTI among many others. These organisations have presented the most interesting and best covering overviews so far over international, historical facts as well as future trends. Local Swedish material has been collected from a number of sources. *Statistics Sweden, SCB*, has served as our main source for the Swedish input. But many, many other sources are quoted, so we ask the reader to pay attention to the source of each single diagram, table, and statement.

Even the experts of our institutions, such as SCB are having some difficulties in describing the situation of one single country and its telecom and IT users. They state that, ”*however important, it is practically impossible to get satisfactory facts and statistics about IT and its usage for various reasons. One of these reasons is the — for Europe — new and open competitive market.*”
Source: SCB: Data om informationstekniken i Sverige 1996

Thus, the reader needing exact information is asked to go directly to the sources in order to understand how the facts presented are collected and selected. The alternative is, for the one who is in a hurry, to interpret the facts in this document as approximations, and the relations of these approximations as relative to each other rather than as a true picture of reality.

By now, there are several academic studies available on all kinds of aspects of the information society. Reference have been made to some of these in the various chapters of this yearbook, reports that we have decided may be of particular interest to our readers.

1.3. Facts About Facts

One of the important fact about the facts, serving as a basis for this yearbook, is that Sweden did not become a full member of the European Union until 1995. Thus, in international telecommunications and information technology statistics, Sweden still is most commonly included in the EFTA region, as in the previous years. It is difficult to say how long it will be until international statistics will cover the EU after the latest expansion. In any case, the new regional borders in Europe contributes to the difficulties in making comparisons over a longer period of time, without considerable reevaluation of existing facts.

A second important set of data is, that there seem to be different ideas about where the technological development is going among our source materials. So, for instance, the OECD is treating telecommunications and computers as two parallel but different worlds, issuing two different publications, "*Communications Outlook*" and "*Information Technology Outlook*". "*Information Technology Outlook*" covers IT, which is defined as "*computer hardware, components, software, and services*", while "*Communications Outlook*" covers "*telecommunications equipment and services, as well as initiatives to upgrade and extend telecommunications infrastructure or transmission or networks or their operation*".

EITO, on the other hand, is looking at "*ICT, information and communications technology*", and is treating the two technologies as well on their way towards integration, although it has not yet happened: "*Telecommunications, computers and information content are converging into a single medium at stunning speed*".

The pilot report "*Development of the Information Society. An International Analysis*" from the British Department of Trade and Industry, DTI, is looking upon the "*converging information society*", where "*the telecommunications industry, multimedia network equipment, interactive multimedia, and online multimedia*" merge to the benefit of the user.

Those who read and use the contents of the TELDOK Yearbook should be aware of these facts, since they influence the interpretation of the facts given. It must also be borne in mind that some of the sources give contradictory facts. This makes it all the more relevant for the reader to make her/his own decisions about the possible interpretations.

Anyone being the least unclear about the meaning of whatever is presented, is recommended to go directly to the sources, as already pointed out above. All of them contain interesting additional information and analyses, at the same time bringing a clear understanding and adding to the confusion. In this way we are

all brought forward by the ever increasing knowledge of the information society technology, which started out as a humble technology to assist deaf persons and rapidly has developed to a world spanning social and economical phenomenon.

1.4. The Settings –The Information Society and Cyberspace

The Global Information Society, GIS, needs the Global Information Infrastructure. The Cyberspace needs the Internet. The Internet is the first backbone in the Global Information Society... such is our IST global context.

Two of the predominating present telecommunications and IT industry buzz words are "Information society" and "Cyberspace". These words are particularly used — and misused — by anyone, wanting to appear "in" as we used to say some years ago — today's equivalent is "cool". In any language. "Information society" and "Cyberspace" are so frequently used that they may well have turned into "memes" as defined by the British biologist Richard Dawkins¹.

But, what are the contents of these words, once we start thinking about them? What do they stand for? In the process of putting this document together, we have been scouring our sources for definitions of these and other concepts, relevant to our communications prone era. Here we will stay with two definitions, one for each concept — or, maybe, meme:

The Information Society:

"The term "Information Society" cannot be precisely defined. It conveys a great deal — a society that uses information intensively and in a way that is not constrained by time or space, a society where transactions of all sorts can be processed electronically, a society whose working and living practices have been modified fundamentally by technology. However, what the Information Society consists of precisely is elusive for two good reasons. First, the Information Society has not yet been achieved and there is considerable debate about the services and technologies that will create it. And second, the term, the "Information Society", is used by many different people (in Europe and elsewhere) in many different ways."

Source: Department of Trade and Industry: Development of the Information Society. An International Analysis, Norwich U.K., 1996

¹ Richard Dawkins defines a meme as a "cultural reproducer", a culture based equivalent to the biology based genes. See his book *"The Selfish Gene"*, Oxford University Press, 1976.

The Cyberspace:

"Cyberspace is the total mass of electronic communication networks, databases, and whatever else is needed for global communication via the Internet. It is the environment — or biotope — of the Cyberpunks."

Source: NUTEK, Närings- och teknikutvecklingsverket: Datornät och telekommunikationer. Infrastruktur för informationssamhället, R 1993:66 (Translation by the editor)

Much can — and should — be said about these definitions. We shall however confine ourselves to the following reflections:

- * each definition is trying to combine the easily quantified — technology and economics — with aspects not so easily quantified: the cognitive human being and her society. Or to be a bit more precise for the context: users and their habits, lifestyles, fancies, actions, and emotions;
- * each definition is more orientated towards the user than towards the technology and the technological systems and the market place, although the economical aspects, for obvious reasons, are even more in focus in this sixth issue of the *"TELDOK Yearbook"* than in preceding editions.

It is impossible to say if these reflections mirror proper trends here to stay, trends that can be measured by traditional quantitative methods, or merely are the dragon flies of a sunny summer afternoon. Whatever, let it here be stated that in every single current source on the telecommunications and information technology industries, the user is working her way more and more into focus. Thus the subtitle of this sixth issue of the TELDOK Yearbook: *"Telecommunications and Information Technology in Sweden From a User's Perspective"*.

The Information Society and the Cyberspace are, of course, not the only terms that can be discussed. In spite of the evident merger between telecommunications and computers, the most common statistical sources of information insist on defining "information technology, IT" as covering "computer hardware, components, software, and service" (EITO, OECD), while "telecommunications" belong to a category of its own, concerned with "telecommunications equipment and services, and initiatives to upgrade and extend telecommunications infrastructure or transmission networks or the operation" (OECD). When facts about the two industries are merged it is sometimes called "ICT, Information and Communications Technology" (EITO) or "IST, Information Society Technology" (EU). Is the user of the TELDOK Yearbook less confused by these explanations? More confused? Still confused, but at a higher level? We would love to know!

1.5. The 1997 Yearbook

There are some striking differences in the background materials for the 1997 issue of the *"TELDOK Yearbook"* as compared to that of its predecessors. One is the present predominance of facts about the IT industry, i.e. the industry occupying itself with computers and related products and services, while facts about telecommunications are much more scarce and harder to come by. Earlier it was the other way round — an abundance of facts about telecommunications, issued by PTTs, and a few scraps of rather obscure facts about the IT industry. The reason for it is obvious : The liberalisation/ privatisation of the telecom sector has resulted in very few facts available — even the OECD is having difficulties obtaining information from their member countries. We are not yet accustomed to the idea that the formerly so open information flow from the telecom industry now is hemmed — by the very liberalisation processes and competition. At the same time we have grown used to interpreting the sometimes cryptic data from the computer industry.

Another difference is that by now, in April 1997, every single aspect of society is involved in or with information technology, telecommunications, and new media. Before, in the good old days of yesteryear, there were the pioneers, those who braved a large number of technical, financial, and social obstacles in order to use the wonders of information technology. Today, it is impossible **not** to use it. Which means that almost all aspects of society have to be covered, which in turn is impossible...

A third difference is that there is so much more qualitative data available. In some cases it is rather unclear how it should be interpreted, but it is there. In the early days of the first four issues of the yearbook, we had to make do with rather crude qualitative data.

Two of the reasons for the recent mass of qualitative data are:

- * the users are in focus
- * our information habits are changing

and we have to understand what drives it all in order make sensible decisions.

No longer do we merely rely on conventional media like books, newspapers, broadcast programs, and television for our data. Those of us equipped with a reasonably powerful PC, a modem, and some pieces of software, are searching the entire world for relevant — and irrelevant — information, assisted by search motors like NetScape, AltaVista, Lycos, WebCrawler, just to mention a few, via the Internet. In the future, it will be much more interesting to study information habits than counting numbers of PCs and mobile telephones installed. Statistics Sweden is giving this a thought in order to develop new methods for measuring such habits.

The members of the editorial committee of the TELDOK Yearbook 1997 have spent considerable time, suffered a lot of headache, survived a number of excruciating discussions about materials, that should be included and materials that should not be included. In the process, we have in turn caused headache to the TELDOK Editorial Committee, and a great number of other persons actually waiting for the manuscript to be finished. We want to say thank you to all of you, not only for a lot of patience, but also for very valuable advice and support in every possible way.

We also want to say thank you to every single source utilised to build this book (because a construction it is) — thank you for permitting us to reproduce your material.

Special thanks go to the TELDOK Editorial Committee and to Bertil Thorngren, without whose support we would have drowned in the background material. Most of all, we want to thank our gentle "TELDOK mentor" PG Holmlöv, without whose prodding we would still be floundering in a sea of contradictory information.

The editorial committee of the TELDOK Yearbook 1997

Currency	931231	940630	941231	950630	951231	960630	961231
US\$	8.3125	7.6325	7.4325	7.2350	6.6375	6.6100	6.8250
£	12.3300	11.7750	11.6250	11.5400	10.2950	10.2475	11.5650
ECU	9.3275	9.1950	9.1300	9.6450	8.5200	8.2350	8.5500
100 Ffr	141.7500	140.2500	139.1000	149.2000	135.6500	128.5500	130.7500
100 DM	481.2000	480.6500	480.6500	523.5000	462.9500	434.8000	440.5500
100 yen	7.4400	7.7250	7.4700	8.5525	6.4580	6.0260	5.9500

Table 1: The Swedish crown rate compared to some currencies relevant to IST statistics for the period during which the manuscript of the TELDOK Yearbook 1997 has been put together. Values given in diagrams and tables throughout this book are in local currencies, unless otherwise stated, and related to the currency rates current at the time indicated by each source.

Source: SE-Banken/The Scandinavian Bank

**To access the TELDOK Yearbook on the Internet, type:
<http://www.teldok.framfab.se>**

Last data entry: May 15, 1997