



Olle Findahl

# The Internet in Sweden

2007

## **THE INTERNET IN SWEDEN**

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Legally responsible for this edition: Jan Elvelid, World Internet Institute

Author: Olle Findahl

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Copies of the printed report can be ordered from the World Internet Institute.

World Internet Institute  
Stationsgatan 7  
824 43 Hudiksvall  
Sweden  
Tel. nr: +46-650-60 10 06  
Fax: +46-650-60 10 05  
[info@wii.se](mailto:info@wii.se)  
[www.wii.se](http://www.wii.se)

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## Preface

The world is changing and we are finding out how! At any rate, seen from the point of view, which we believe includes some of the more significant changes in our lives today – the use of information and communication technology and how it affects people and society.

Today we live in a world where technology is becoming something regarded as natural and commonly available to the majority, though in numerous ways. We are convinced that the Internet can create a better life for the individual and contribute to a sustainable development of society, even if there are two sides to the coin. In Sweden we have, compared to other countries, small digital gaps but there are still people who are excluded from the digital community. Previously, it was easy to calculate, when we defined the gap between those who used Internet now and then and those who didn't, but today we see that the picture is more complex than that. The advantages that certain groups of users gain utilizing technology are far greater than for others, in spite of the fact that they are both defined as users.

Since the beginning of the 21st century, we've been experiencing an important shift in technology, seen from an internet user point of view. We've seen that usage has changed radically with the increasing installation and use of broadband in homes. Users with high-speed hook-ups, as opposed to those with dial-up connections, use the Internet for more things, develop a different attitude to Internet and feel its effect on their lives to be more far-reaching. A new addition to technology is wireless technology. We will be seeing a giant new step in the use of technology and how it affects our lives.

We are working actively to understand this development in order to be an objective resource in society and to contribute with relevant and reliable data, on which to base decisions.

Decision makers the world over, from the US to China to Sweden, use the results of the World Internet Project as a basis on which to make policy decisions. In Sweden we contribute with data for politicians, the business community and researchers. There's a great need for understanding of how technology is used and how it affects the individual and different sectors of society. It's not just a matter of promoting a more user- and usefulness oriented technological development. Customers are making new demands on accessibility and interactivity, citizens want to reach their politicians and various public services, law makers must take into consideration relationships that didn't exist just a few years ago. Geographical boundaries are being erased, which creates demands, new competitive situations, makes for new business opportunities and contributes to new threats. The list can be made long covering situations that are affected, or even completely changed because of the new technology. The importance of an objective description and analysis of past and present, which promotes insight into the future, cannot be stressed enough.

**Jan Elvelid**  
Managing Director  
World Internet Institute

**Danny Aerts**  
Managing Director  
.SE – The Internet Infrastructure Foundation

# Summary



In today's Sweden, the Internet is in a consolidation phase. Attracting new users is slow, while those who already have access to the Internet are using it more and becoming more versatile. Young people and the younger senior citizens are the groups who show the most growth over the last few years.

### THE NEW INTERNET GENERATION TAKES OVER

Those who have grown up with the Internet and now are adults, the new Internet generation, have made the most impact on the statistics. They have access to everything and use the Internet for everything. Much more than anyone else. They file share, network, blog. Besides online communication via instant messaging and entertainment on the Net, the new Internet generation is active in the establishment of different web communities and many are actively posting information.

### GROWING NUMBERS OF PRE-SCHOOLERS USE THE INTERNET

The time we spend on the Internet has tripled in the last seven years, while the Internet has spread to younger users, down to pre-school age. Internet use for children under the age of 7 has doubled during the last few years. Nowadays, one of three pre-schoolers uses the Internet. For school children, from grade one and on, the Internet is already well established. Virtually everyone is an Internet user. School children have become the group, out of all the age groups in the study, with the largest percent of Internet users.

### BROADBAND OFFERS NEW OPPORTUNITIES

The increase in Internet use is due to the fact that two of three in the population have gotten hooked up via broadband. It's opened up a totally new use of the Net. Besides the traditional search for information, the Internet has become an encyclopedia, an aid for finding timetables, schedules and addresses, a dictionary and language resource, a market place and a place for news and perusal of magazines. The Internet has also, especially for the younger users, become a source of entertainment: music, videos and gaming.

New opportunities and services have sprung up, especially in the entertainment area and in user-generated information. If Internet use in the mid-90's, slightly exaggerated, could be summed up as e-mail and a few websites with information, then that's not the case any longer. The Internet has become a medium for communication, information, and entertainment, where the content is to a certain extent created by the users themselves.

### THE MAJORITY ARE STILL CAUTIOUS TRADITIONALISTS

Most Internet users are however not young, but middle-aged. Besides sending e-mail, they use the Internet in a traditional way, focusing on information. Their attitude is positive toward Internet but other media are in many cases more important to them.

### THE DIGITAL DIVIDE REMAINS

In spite of the fact that Internet use is growing and more time is being spent online, about a third of the Swedes are still outside the world of Internet. This means that Internet isn't a part of

two million adult Swedes' daily lives. Internet Sweden is still a "two thirds society". This is because of a generation gap, which reflects the interest in and the need for the Internet. There are differences in income and education, where, first and foremost, income still shows a clear correlation with those who have less access to the Internet and there are various kinds of physical disabilities that make Internet use more difficult.

### INTERNET ACCESS

90% of all Swedes over 18 yrs have access to the Internet somewhere. 79% have access to the Internet at home.

### INTERNET USE

76% of the Swedes use the Internet somewhere. 71% use the Internet at home. 68% use the Internet at home at least once a week. 52% use Internet daily.

### THE MOST POPULAR INTERNET ACTIVITIES

93% use e-mail, 87% read the news, 86% look up information about schedules and products, 79% read an e-zine and the same amount visit web pages that are associated with their hobbies and special interests, 78% of Internet users pay their bills online.

### COMMUNITIES AND BLOGS

11% of the population over 18 yrs is a member of a web community. 3% have a blog. Of young people, 18-29 yrs, 34% are a member of a community and 7% have a blog. These two activities didn't exist in 2000.

### ARE THE USERS SATISFIED WITH THE INTERNET OR NOT?

83% of the users are satisfied or very satisfied with the Internet in general. This is a rise from 75% in 2000.

### HAVE COMPUTERS MADE WORK MORE EFFECTIVE?

Half (56%) feel that the situation is unchanged, 37% that productivity has increased and 8% that it has declined. This is a decline from the year 2000, when two of three felt that computers had made work more effective.

### CAN YOU TRUST THE INFORMATION ON THE INTERNET?

One third believe that most of the information is reliable, one third answer that half the information is reliable and one third of the respondents feel that only a small part is reliable. No change since 2000.

### CONCERN ABOUT VIRUS AND FRAUD

42% are worried about credit card fraud. A decrease from 72% in 2000.

49% are worried about computer virus attacks.

### THE INTERNET AS A SOURCE OF INFORMATION AND ENTERTAINMENT

Apart from family and friends, TV is the most common source of information. Then we have newspapers, radio and lastly the Internet.

Compared with the year 2000, the Internet has strengthened its position.

TV dominates as a source of entertainment. Then comes radio, with newspapers and the Internet sharing last place. Internet has moved up a spot.

If we just look at young people 18-29 yrs, they place the Internet first, both as source of information and entertainment. They didn't in 2000.

### **NEW CONTACTS VIA THE INTERNET**

Internet use has increased contacts with others within the same profession (say 30%), with friends (say 26%), with people who share a hobby or an interest (say 23%), with family (say 18%). However, Internet hasn't increased contacts between people with the same political views (7% say that contact has increased, while 5% say that they have decreased) and religion (4% say contacts have increased vs. 4% say the opposite). This is the same pattern as earlier.

### **THE INTERNET AND DEMOCRACY**

The Swedish people are still skeptical to the Internet's ability to affect and change the political climate and reaffirm citizens' ability to manifest changes. Only 10% feel that the Internet will make it easier to influence the government, 12% think that people will get more political power with the help of the Internet. No changes since the year 2000.

21% feel that the Internet will make it easier to understand politics. 60% agree with the statement that the Internet will make it easier to get access to information from authorities. Small rises since 2000.

### **E-COMMERCE**

37% of the population shop at least a few times per year via Internet. That's a rise from 8% in 2000.

### **FEEL A PART OF THE NEW INFORMATION SOCIETY?**

57% of the population feel a part of it, 43% don't. This is a significant rise from year 2000, when 35% felt a part of it and 60% felt left out or not involved.

# Internet Use Continues to Grow



1

The prominent features for a diffusion curve of a new technology show three phases: a slow prelude, which then accelerates into a fast rise, and finally a gradual reduction when the increase planes out. The diffusion curve shows the transition between these phases in points of curvature, where the curve changes angle, marked below by A, B and C, where the increase planes out.

**THE GENERAL DIFFUSION CURVE FOR INTERNET USAGE**

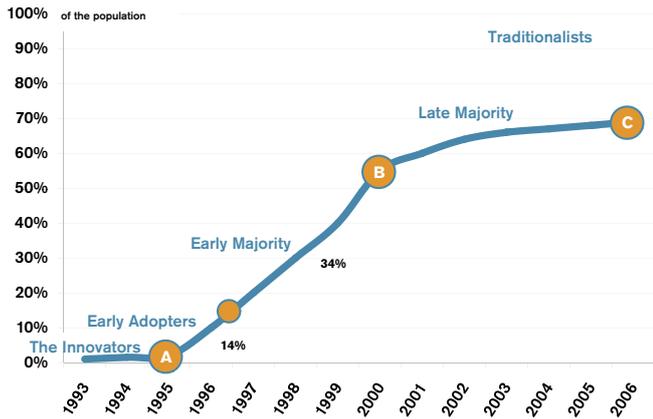


Diagram 1. The growth of Internet use in the Swedish adult population 1993-2006

In the early 1990's, Sweden was not one of the countries that early on embraced the Internet. In Sweden, the beginning was rather slow. In other countries, such as the U.S., Canada and Korea, there was a greater interest in the Internet. But when it eventually accelerated in Sweden, between 1995 and 2000, the Internet quickly spread and Sweden became one of the countries in the world with the largest portion of Internet users. Even though the rate of increase slowed a bit after the year 2000, new users are constantly going online. Sweden differs from the U.S. and some other countries here, where the increase has largely ceased. In other countries, like Portugal, the increase has not yet taken off. The interesting question for the future is whether the Internet will continue to spread to a majority of the population around the world and will the Internet, in the affluent industrialized world, reach the 25 percent who are still off-line?

**INTERNET USE IN THE POPULATION 1995-2007**

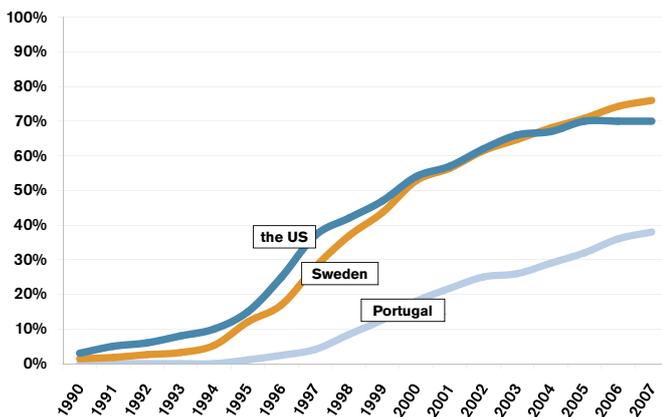


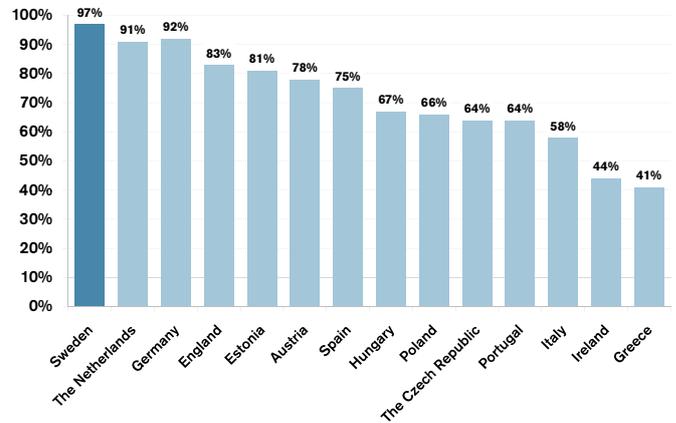
Diagram 2. The Growth of the Internet in Sweden compared with the U.S. and Portugal  
Source: WII 2007, Pew 2005-2007, WIP Portugal 2003, Instituto Nacional de Estatistica Portugal 2007

A crucial question for how the situation will develop is how senior citizens will react. They comprise the main part of the "late majority". To what extent will they find the Internet interesting enough? Let's begin by comparing the increase of internet use among the youngest and the oldest and then extend the comparison to a larger number of European countries.

**THE INTERNET AMONG YOUNG PEOPLE AND SENIOR CITIZENS**

In 2005, internet use has spread to a majority in the younger generation, while it's taking quite a while among senior citizens. In the diagrams on the next page, we can see how many are online among young people and senior citizens in a number of European countries.

**INTERNET USAGE AT AGE 16-24**



**INTERNET USAGE AT AGE 55-64 AND 65-74**

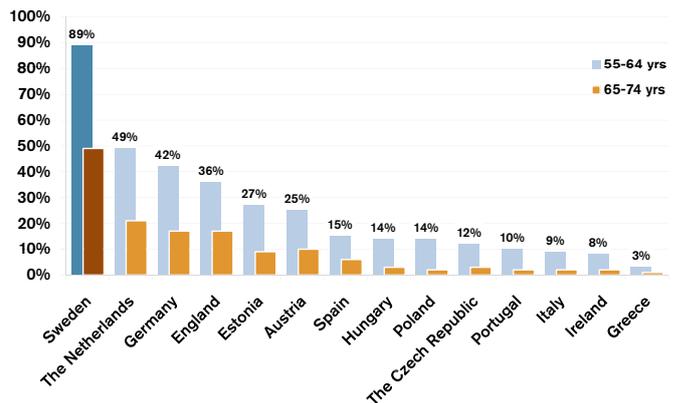


Diagram 3 and 4. Internet use among young people and senior citizens in Europe 2005

Source: Eurostat, 2005

Comparing the European countries, we find Sweden at the far left in both diagrams, which indicates that Swedish Internet usage is in the lead. Internet is used by a majority of young people (16 -24 years) in almost all the countries, with the exception of Ireland and Greece. Among senior citizens in Europe, the situation is completely different. In many countries, senior citizens, including those older than 55 yrs, are completely

excluded. After ten years with the Internet, there is still a deep “digital divide” between the young and the old in most European countries. Sweden is the exception.

### THE INTERNET AMONG THE WELL EDUCATED AND LESS EDUCATED

Level of education showed itself early on to be an important factor for the growth of the Internet. The best educated were those who first acquired online access. How does the situation look after ten years? Let’s compare a number of European countries and see first how it looks for the well-educated users.

**INTERNET USAGE AMONG THE WELL EDUCATED**

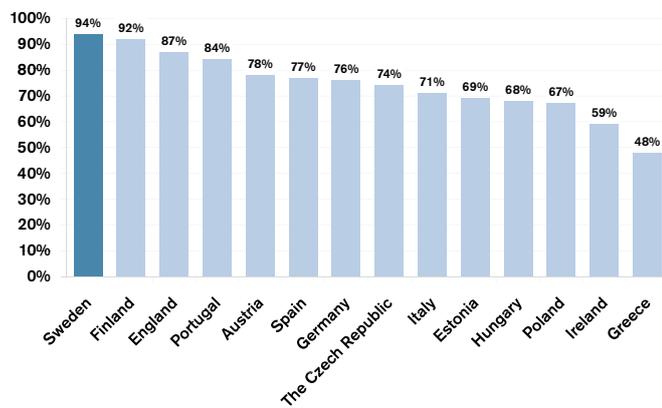


Diagram 5. Internet usage among the well educated in Europe in 2005

Source: Statistics in focus, 28/2005. Eurostat.

A majority of the well educated in almost all countries uses the Internet today. In Sweden, as in Finland, there is just a small group that stays offline. But how does it look after ten years for the less educated, who in every country were late to acquire access to the Internet? In the diagram below, Sweden is at the far left, just as in the previous diagrams, which shows us that the Internet has grown a lot, even among the less-educated in Sweden.

**INTERNET USE AMONG LESS EDUCATED PEOPLE**

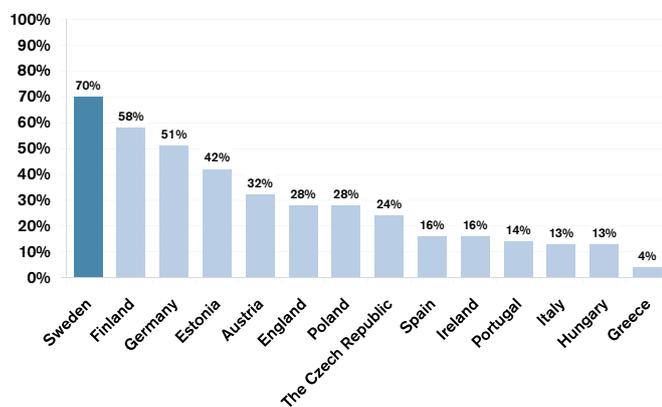


Diagram 6. Internet use among less educated in Europe in 2005

Among the less educated, the situation differs considerably from country to country. Sweden shows a marked deviation from the other countries. Seven of ten among the less educated use the Internet, while one of four or even fewer are Internet users in most other European countries.

As we have seen, the development of the Internet in Sweden is remarkable in several ways. Not so much when it comes to early growth, which began simultaneously in most of the industrial countries. The innovators and the early adopters existed in many countries. The remarkable thing is what happened later. To what extent does the complicated technology reach senior citizens and the less educated? This is where Sweden differs from most other European countries. The Internet reaches not only young people and the highly educated, but senior citizens and less educated as well. The “digital divide” still exists, but not at all in the same manner as other countries, where senior citizens and less educated are almost entirely excluded.

### YOUNG PEOPLE AND SENIORS HAVE INCREASED THEIR USAGE THE MOST

But even in Sweden the majority of senior citizens are excluded. Let’s look closer at the diagram, which shows the growth of Internet use within different age groups during the past seven years. We can see that access to the Internet has increased quite a lot during this period, with an exception for senior citizens. They have not increased their use until the last few years. The largest increase has been among young people (18-24 yrs) and among younger retired people (65-74yrs.).

Here we may believe that the reason for these impressive increases has to do with generational changes (the cohort effect). As opposed to many of those who were 18-24 years old seven years ago, those who are now 18 belong to “the Internet Generation”, i.e. they have grown up with the Internet and take these habits for granted as they grow older. Young adults of today have other experiences than yesterday’s young adults. This can explain the great increase in the youth group.

Younger retired people (65-74 yrs) show a similar development. Seven years ago, few of them had any experience of the Internet. During the 7 years, which have elapsed, this group has been enlarged with people who have used the Internet at work and now bring these habits along into retirement. Today’s younger senior citizens have other experiences than yesterday’s.

We can also see that, for all ages between 18 and 54, the ceiling has almost been reached, i.e. 90 % of the age group have access to the Internet. But the ceiling still hasn’t been reached and, especially among youth, the pressure is on and a ceiling effect doesn’t seem to take place before almost 100%.

Who’s been hooking up to the Internet lately? Who belongs to this “late majority”?

### THE NEWCOMERS

A majority of Swedes have, as we’ve seen already, hooked up to the Internet and the fast growth among Swedes has slowed down. But new users are still appearing. People, who earlier, for different reasons, haven’t jumped on the Internet bandwagon, have now decided to check out the possibilities of this new technology. Who are these people? Are we talking about reactionaries and

**ACCESS TO THE INTERNET AT HOME 2000-2007**

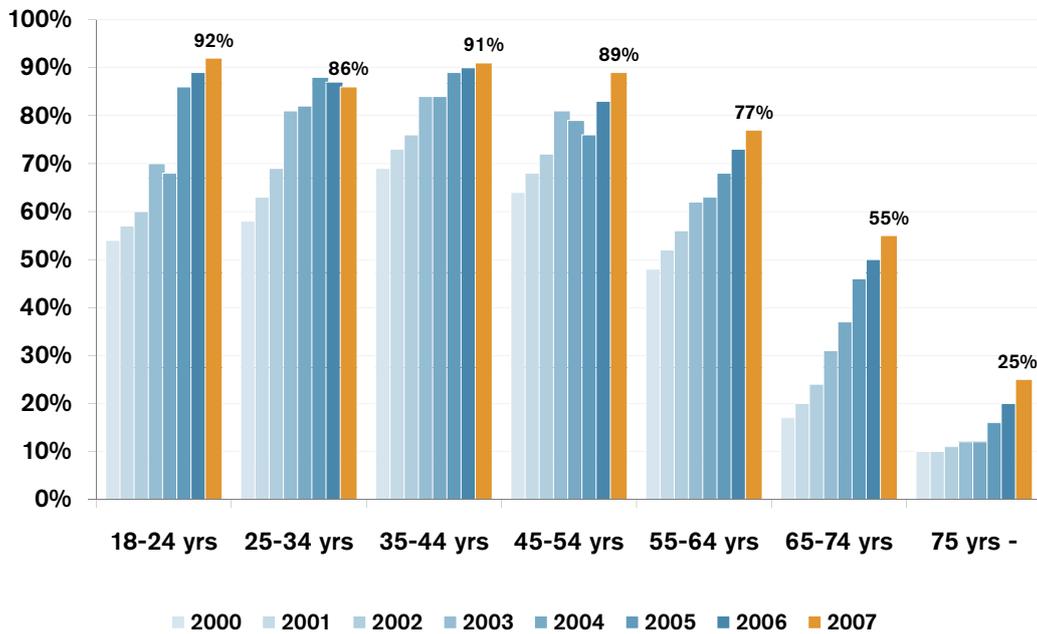


Diagram 7 which shows how access to the Internet has altered in different age groups between 2000 and 2007.

technology-haters, according to the classic diffusion theory? Or is it the poor, less educated people who couldn't afford hooking up earlier? Or is it those who already have a computer but who began recently to feel that the Internet is interesting? Or is it people who experience the increasing pressure from friends and family, and now also must go online, since everyone else has?

In our sample, 137 persons have acquired an Internet hook-up in the last two years. Let's see what characterizes this group and in which way they differ from the population in general. There are more women (58%) than men and more young people (31%) than one would expect. Over 90% of young people already have access to the Internet, but it's young people who seem to dominate the newcomers' group. There is obviously a strong need, among almost 100% of the youth group, for access to the Internet. It's interesting that these newcomers don't behave like beginners. They utilize the Internet's potential, are members and active in various web communities. The education level is no different from the average but the newcomers have a lower than average income. This group includes also more sick-listed and unemployed than in the population as a whole, but not more of senior citizens, as one could have expected.

So, it's not a question of a few stick-in-the-muds or traditionalists. Finances can have been a reason that a part of those who have recently hooked up haven't done it earlier. Children in the household can be another reason for waiting to hook up.

SEX	Newcomer	Internet user	The population
Male	42 %	51%	51%
Female	58%	49%	49%

AGE	Newcomer	Internet user	The population
18-25 yrs	31%	24%	19%
26-35	18%	17%	16%
36-45	11%	21%	18%
46-55	13%	16%	14%
55-65	19 %	14%	16%
66-75	6%	6%	10%
76+	2%	1%	8%

INCOME	Newcomer	Internet user	The population
Low income	30%	18%	20%
Low-medium	18%	21%	19%
Medium-high	22%	33%	23%
High income	9%	28%	18%

EDUCATION	Newcomer	Internet user	The population
Level - low	21 %	15%	23%
Level - medium	42%	42%	40%
Level - high	34%	43%	36%

OCCUPATION	Newcomer	Internet user	The population
Employed	55 %	65%	60%
Students	17%	13%	10%
At home	5%	3%	3%
Sick-listed	7 %	4%	5%
Unemployed	7 %	3%	3%
Retired	10%	8%	19%

Table showing how the newcomers among Internet users differ from others

## PROFILES OF NEWCOMERS TO THE INTERNET

### Example of a young woman who has recently hooked up to the Internet.

21-year-old female employee with a high school diploma, who likes music and is particularly interested in dogs and canine sports. She doesn't read periodicals but listens sometimes to the radio (music) and watches TV. She also listens to music on her cell phone, downloads music, uses text messaging and checks the news. She has used the Internet at work since 2000. Her Internet use at home is limited to e-mail, news, looking up words, etc. She has filed her income tax via the Internet and has a digital signature. She has made photographs available to family and friends over the Internet. She has tried file sharing even before she got access to the Internet at home. It's easy, practical and free. However, she buys music about as often as before. She is not worried about credit card fraud. Her Internet use has increased her contact with mainly people who share her interests. She has made entirely new contacts and has met some of them in real life. She is a member of an online community, which shares her interest in canine sports. It's quite important to her and she contributes to the contents. She is also a member of several canine performance clubs, which have frequently visited web sites. She is quite satisfied with the Internet and finds it just as important as TV and to a certain extent radio, as a source of information and entertainment. She regards herself as active in the new information society and feels that the Internet has increased her productivity at work. At home, her partner surfs the most, though she feels no need to use the Internet more than she already does.

### Example of a female senior citizen who is a newcomer to the Internet

63-year-old single retired person with a high school education. Main interest is cooking, gardening and handicrafts. She listens to the radio all day long, reads her local newspaper and watches TV. She has a cell phone without any extra functions, as far as she knows. Her Internet usage is rather extensive and she may use Internet outside of her home. She uses the Internet for information about travel and health, surfs, reads the news and plays games. Sometimes pays bills and checks out facts. Doesn't shop online. Feels it's shady, and she's worried about fraud and virus attacks. She has her own blog which she works on a few times every month. She is also a member of a community of social character. But it's not at all important for her. She doesn't feel particularly computer savvy but feels a part of the new information society. She does not wish to use the Internet more than she already does.

### Example of a single male parent as newcomer to the Internet

35-year-old single employee with low income and two children between 7 and 11 years of age. He doesn't read a newspaper, but watches TV. He has a cell phone and besides conversations, sends text messages and sometimes pictures with MMS. He sees himself as a rather experienced computer user. Uses the Internet only a little at home via DSL and even less Internet at work. E-mail daily but more seldom Internet for news, periodicals, products, tickets, dictionary, control of facts, income tax returns. He has shopped online a couple of times but pay-sites and services are too expensive. TV and radio are more important than the Internet. His special interest is girls. At home, it's mostly the kids who use the Internet. He feels completely a part of the new information society and wouldn't want to use the Internet more than he does.

In contrast to the newcomers are the people who, early on in the 90's, were attracted by an interest for the new technology. These were innovators and before them the pioneers. It's quite a different group of people than those who acquired the Internet 15-20 years later.

## PIONEERS AND INNOVATORS

In the early 90's, knowledge spread among computer users that you could connect your computer, send electronic mail and transfer files to other computers. The technique was still complicated but its possibilities were enormous and interesting to explore. This was a limited group of a few tens of thousands of people, which grew during the early 90's to a few hundred thousand. Two out of three are male. They are well educated and rather young, with an average age of 35 years. One of three has a technical background, with a connection to computers and programming. But most are white-collar workers, professionals, either with managerial posts or jobs where the new technology is expected to be of use. There are also people with a background in health care, like doctors and nurses and in education, such as teachers. There are also some with their own firms. (WII 2000, 2003)

But preceding them were a couple of hundred people who were online as early as the 80's. We can call these early internet users "the pioneers". They belong to a unique group who are way before all the rest at a point in time when the Internet was still a relatively unknown phenomenon. A comparison of pioneers and innovators shows no great difference in age or education. 70% have a university education. There are however a few more younger people among the innovators. Today their average age is around 45 years. Women, who were only a very few of the pioneers, comprised a fourth of all the innovators.

If we look at fields of activities, they are dominated by persons who today work in IT and telecommunications. Just as many work as consultants. Public service and bank/finance sectors are also represented. These are very active internet users. All of them use the Internet several times a day at work and most of them use the Internet daily at home. Nearly all are members of various communities, both concerned with computers and new technology and ones that concern private interests. Many,

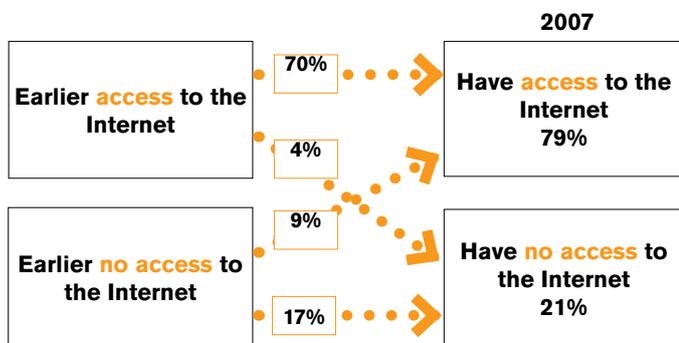
particularly among the pioneers, also have experience in working with the development of open source code. (Findahl & Selg, 2007)

**SOME LEAVE AND OTHERS RETURN**

Through time, as we have observed, new Internet users are appearing, who haven't had access to the Internet earlier. The result can be seen in the diffusion curves. But in reality, the growth process is more complicated. For different reasons, some cease to use the Internet while others begin using it. And some of these newcomers are not really beginners, but have used the Internet before and return after one or more years. What we observe in the growth curves is the net result. This means that there are more that have joined than can be seen in the numbers. In the U.S., for example, there has been a balance between the number of newcomers and those who drop out, so the results of this are that the development looks like it's standing still, though there is a flow of internet users. When the flow of newcomers is larger than those who leave, internet use appears to grow. It is conceivable that even in Sweden there can be a balance when access to the Internet in some age groups exceeds 90% and the newcomers are few, while some people, for economic, technical or other reasons at least temporarily stop using the Internet at home.

There is a diagram below, which shows the flow between new and old internet users, from the situation in early 2007. The figures are preliminary and the flows more complex than the diagram shows, but it still gives a rough overview of the process through time. From the diagram we can see that 79% of the adult population has access to the Internet 2007 and that 70% has had it during earlier years. Another 9% haven't had the Internet earlier, but got it during the latter years. A total of 79% have access to the Internet at home. This figure would have been higher except for the 4% who have had Internet and now stopped using it.

**SOME LEAVE, SOME RETURN, SOME NEWCOMERS**



**WHY NOT THE INTERNET?**

Today, a majority of the population has access to the Internet. The reasons for this are surely many, but when people have begun to use the new technology, most of them are predominantly positive.

New technology spreads first to enthusiasts and innovators, and then follows what we usually call the early majority. Families with children are included here, but only a few senior citizens. Then, if the technology fills more long-term needs and is user friendly, is economically affordable, then it can continue to spread to a majority of the population and even to most of the elderly. That's what happened with TV, radio and video tape players and even, earlier, with telephones and their successors, cell phones. However, as we have seen, the development for computers and the Internet has been a bit slower. It is important to remember that technological change takes time. Earlier, it's taken ten to fifteen years before almost ninety percent of the population acquired radio and later on TV. For the video tape player and the cell phone it took twenty years.

When more and more neighbors and friends have access to the Internet, the pressure increases from the surroundings and maybe from family members to buy a computer with an Internet hook-up. Three of four have done this, but one of four has for different reasons refrained. What reason is there for this? We asked and have categorized the answers according to the circle diagram below.

**MAIN REASON FOR NOT HAVING INTERNET AT HOME**

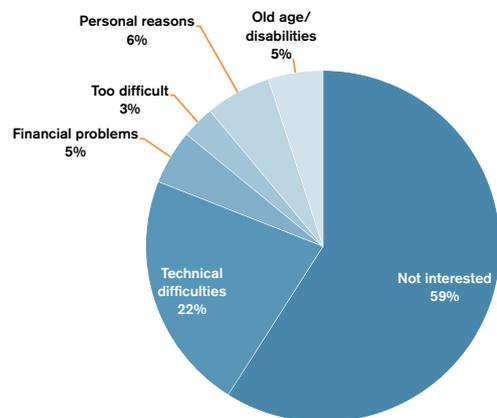


Diagram 8. Which are the main reasons for not acquiring the Internet?

The most common answer was that one was simply not interested in the new technology. Felt no need to have Internet. There was no way it could compensate for the cost and trouble it took. A majority (59%) gave this type of answer.

Another common reason (from 22%) was because of various technical problems. It could encompass things like the rising age of the computer in question, or that the modem was acting up. This is a type of problem which can probably increase when computers must be replaced and programs updated periodically. The Internet is in this way a demanding technology. Not like a telephone landline, which works for many decades, or a black and white TV, which was good for forty years.

Not so many (5%) mention financial problems as a reason to refrain from the Internet. A computer is today affordable for

most people. But for some low-income groups, this is still a question of priorities. Families with children seem to need the Internet more, but where the interest is luke-warm, like among many senior citizens, reasons mentioned are disinterest and not finances. From a sociological perspective, it's evident that finances, at least indirectly, do count. The higher the income, the more probable that there is access to the Internet, and the higher the income, the more computers there are in the household. This is shown in a later chapter, about the digital divide.

Some (3%) state as a reason that they feel that the Internet is troublesome and difficult and that they have a lack of know-how.

If it were easier they would perhaps be interested. Maybe more would give this answer if they didn't have someone close who they could consult and get help from.

The personal reasons (from 6%) are mostly things like change of address, divorce or arriving from foreign travel. They don't have time, or haven't gotten around to it yet. Here are also some who, for ideological reasons, are opposed to digital technology, which they feel makes people dependent and takes too much time. Also some refrain for moral reasons. They want to protect their children from the adverse effects of the Internet.

Finally, there are those (5%) who mention different disabilities as reason for not having access to the Internet. Mostly a question of functional disability in sight and motor ability, which sometimes comes with increasing age, which causes problems. It's not uncommon that even those who use the Internet mention having functional problems. Later on, one chapter deals with this area.

Not interested	850 000
Technical problems	320 000
Financial problems	80 000
Difficult	50 000
Personal reasons	86 000
Age/ functional impairment	80 000
	1 466 000

**NUMBER OF COMPUTERS IN THE HOUSEHOLD AMONG COMPUTER OWNERS**

1 computer	56%
2 computers	26%
3 computers	11%
4 computers	5%
5 computers or more	3%

**WHERE IS THE COMPUTER LOCATED?**

Study	47%
Living room	27%
Bedroom	22%
Children's room	13%
Hall	6%
Kitchen	6%
Other	11%

Digital Divide



2

When the growth of the Internet accelerated in the late 90's, it was increasingly regarded as a necessary tool to participate in the new democratic society. The goal became, for everyone, regardless of age, income, race, ethnic origin, functional disability, gender or geography, to have access to the technological tools and skills that were needed in the new information society. But the Internet isn't just a medium for information, it's also a technique for human communication. It's a telephone, a post office, a radio, a TV and an infinite encyclopedia, plus much more.

Initially, the Internet grew and spread quickly and within five years half of the population had access to the Internet. But its growth didn't occur evenly in the population. Some picked up the technique faster than others. Initially, the growth in Sweden, as everywhere in the world, followed the traditional socio-economic patterns (Findahl, 2002). Young, well-educated men were the first to embrace the new technology. Education, financial position, age and gender proved to be relevant. However, the Internet grew within all social classes, even though at different rates, and it seemed to be more of a question of time before everyone would have access to the Internet. But that was not the case.

It turned out that the Internet wasn't like TV, which within ten years had spread to 90% of the population. The Internet is a much more complex technology. Access to the Internet is a necessity, but not prerequisite for the successful use of it. This demands motivation, knowledge and skills. Later, we will study Internet use more closely. But first, let's look at access. Is it still true, twelve years after the growth of the Internet on a wider scale, that the level of income and education affects who has access to the Internet? We have seen quite clearly that age matters, but do level of education and income also matter?

### LEVEL OF EDUCATION AND INCOME STILL MAKE A DIFFERENCE

If we measure for the relation (Pearson's correlation coefficient) between access to the Internet and a person's age, education and income, we find strong, statistically significant correlations:

- Correlation **age** – access to the Internet at home: 0.38
- Correlation **education** – access to the Internet at home: 0.31
- Correlation **income** – access to the Internet at home: 0.32

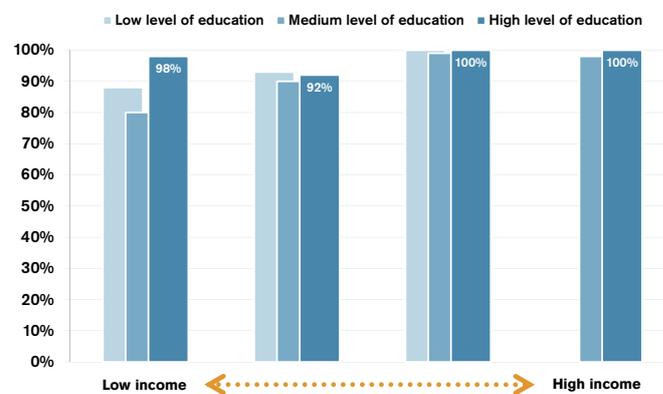
The younger you are, the higher your level of education and the larger your income, this will mean that the probability is greater that you'll have access to the Internet at home. This is what the strong correlations are pointing to. However, simple correlations can be deceiving and often hide more than they uncover. When it comes to age, we saw previously that the difference in access is around the same from 18 and up to 55 years of age. It is only when we look at the senior citizens that access decreases. So age has really no relevance for access to the Internet other than for the oldest people.

How then does a person's education play in? Do the well educated have better access to the Internet compared to the less educated? Yes, according to the correlation charts. But one problem with the education variable is that it varies strongly in accordance with age. Nearly all young people today have

graduated from high school (gymnasieskolan), while it's much more unusual among those who today are retired. If we compare levels of education, the group of less educated will mainly consist of elderly. And we already know that the elderly have less access to the Internet. In order to achieve a more accurate picture, it's necessary to compare each age group individually. How does it look for youth? Does education and income matter for their access? How about the middle-aged? What about the elderly?

When we divide them thus, we find, as shown in the diagram, that education and income do not matter as much among young people. Nearly all of them have Internet access. But there are some groups of young people that are not entirely hooked up. We find them among those with the lowest income and least education. Twenty percent of these lack Internet access.

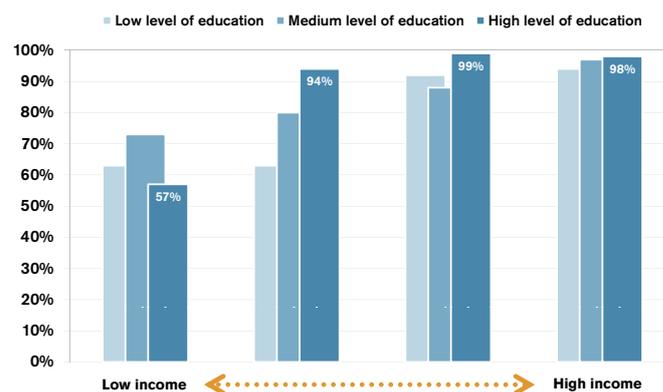
INTERNET ACCESS: SWEDES AGED 18-35 YEARS



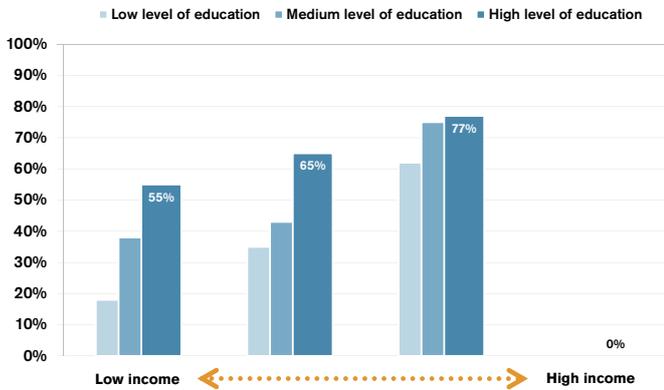
The middle-aged group shows large differences mostly concerning income. The wealthy have all the access while, among those with the lowest income, 43% do not have Internet. Household finances are of great importance.

And among the senior citizens, there is an even larger discrepancy in access, dependant on both education and income. Primarily, the wealthy and well-educated senior citizens have Internet at home. Of those, three of four (77%) have Internet access. Of those with the least income and less education, eight of ten don't have Internet access. So, the older you are the more obvious are the traces of the old class society.

INTERNET ACCESS: SWEDES AGED 35-65 YEARS



**INTERNET ACCESS: SWEDES AGED OVER 65 YEARS**



**DISABILITIES**

Besides disinterest, or not feeling the need for a new technology, there are a number of other circumstances, which can restrain development. It could be a financial problem or that the technology is “a hassle”, or that the contents are difficult to take in. But it can also involve the fact that the technology is designed, not just for the technically savvy, but also for young, healthy and well-trained users. The question is how well adapted is the Internet to users who have different disabilities?

We begin by looking closer at those in our sample who state that they have different disabilities, according to established categories. These can be caused by work-related accidents, age or other reasons. We utilize here a traditional classification which we have compacted into seven categories of disability: Gross motor ability, fine motor ability, internal medical, psycho/cognitive, impaired hearing, impaired eyesight, reading and writing difficulties (dyslexia). Twelve percent of our samples state that they can be classed in one of these categories. That’s the equivalent of approx. 900,000 Swedes. (According to SCB there are more than one million).

Most of these people don’t state themselves as having any special problems using the Internet. Problems that are connected with their disabilities. They use the Internet somewhat less, but almost as much as others. One of seven approx. 145,000, say that they have problems with the Internet. This concerns mainly those with motor disabilities, and dyslexia.

But if we ask the question if they have any disability that makes it more difficult to use the Internet, the answer is another. Approx. 430,000 people say that they have problems. 42% of these say that their bad eyesight makes it hard to use the Internet. 37% say that they have motor difficulties. 13% admit to cognitive difficulties. This includes those with dyslexia. And 8% have different medical problems. All these difficulties are not so surprising. But it’s easy to forget that the Internet relies on written texts, which are shown in a small format on an often dark, flickering screen, without much contrast, during the exact pushing of a row of sensitive buttons on a keyboard.

**DISABILITIES THAT RENDER COMPUTER USE MORE DIFFICULT**

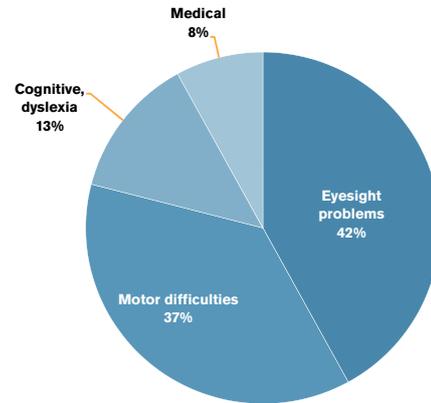


Diagram 1 Disabilities that render computer use more difficult

Where do we find these problems? Well, mainly among the elderly. The older you are, the more disability, which makes using the computer more difficult. One of four among the oldest over 75 years, one of five among those over 55 yrs. About one of ten among the younger population, with the exception of the youngest under 25yrs, where these problems are marginal.

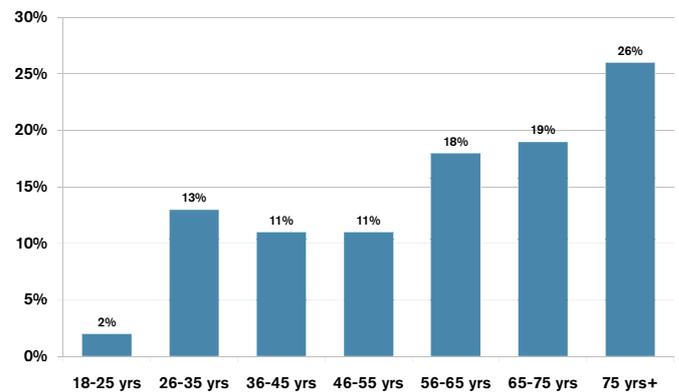


Diagram 2 Disabilities that render computer use more difficult, by age group computer use, by age group

It’s interesting that many of those who feel they have a disability, which impairs their use of the Internet, would like to use it more if it were possible. Mainly, this goes for the elderly over 65 yrs., where 60% say this is true, compared to 17% without disabilities in the same age group. But even at age 45 and over, there are many who would like to use the Internet more.

**WOULD LIKE TO USE THE INTERNET MORE IF POSSIBLE**

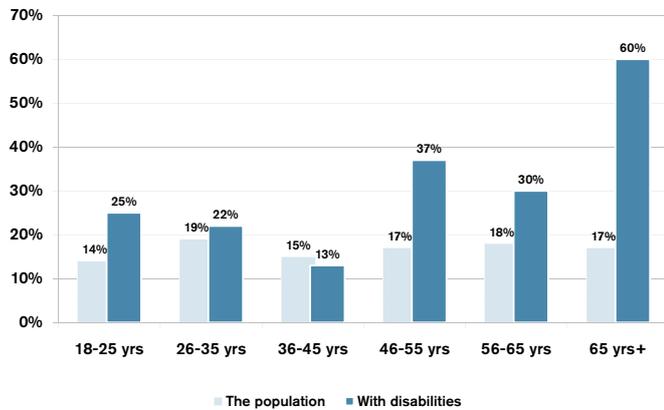


Diagram 3 Would like to use the Internet more if possible.

**INTERNET AND THE ELDERLY**

New technology spreads first to enthusiasts and innovators, then comes what is usually called the early majority. This includes families with children, but only a few of the elderly. Later, if the technology fulfils long-range needs, is user friendly and is affordable, then it can continue to spread to a majority of the population and even to most of the elderly.

Most people who've reached retirement age have found the types of media which they feel suit them for finding information, knowledge and entertainment. They have developed deeply rooted habits with radio and morning papers and TV in the evening. Since they have a lot of time, they can also spend time reading papers, listening to the radio and watching TV. This

demands a great effort for them to desert their habits and trade one familiar and appreciated medium for another. It could, though, be possible that the Internet becomes a complement to other media if it could offer something that the others lack.

Take note that the elderly use the Internet almost exclusively at home. They don't use it in libraries or other public places, neither with friends or relatives. Which is quite common for younger age groups.

While education, income and gender are less important for Internet usage among the younger, it is of great importance for who acquires Internet among the elderly. It's mainly men with higher education and a stable economy among the elderly who use the Internet.

Regarding the elderly Internet users, they are not as active as other users, except when it comes to e-mail. 73 % of the elderly Internet users use email (93% in the rest of the population). Doing banking via Internet is also popular (38% of the elderly compared to 78% among other users). On the other hand, Internet is used very little for contacts and seeking and getting information from the public and the local authority.

Take note here, that even if 38% of the elderly Internet users do their banking via the Internet, this is the equivalent of only 8% of the elderly population, since the total of users among the elderly, is so few.

	Internet users 65+	Internet users 18-64 år	Population 65+
E-mail	73%	93%	14%
Banking	38%	78%	8%
Download forms	37%	46%	7%

## Broadband for Everyone?



3

In the year 2000, when about half of the Swedes had access to the Internet, it was still unusual having broadband at home. Most people were forced to use dial-up modems, often quite a hassle. In a few other countries, the broadband network was built up much faster and, in countries like Korea and Japan, using government subsidies. The broadband was eventually developed even in Sweden and today broadband is on its way to becoming the dominant medium of telecommunication in the industrial world. Broadband provides the base for the development of the Internet and for the individual Internet user it entails, primarily the possibility of being continuously online, and a totally new relationship to the Internet. It turned out that; in a comparison between dial-up and broadband users, online time tripled and many more of the Internet's possibilities were utilized. (Findahl, 2003).

**GROWTH CURVE FOR THE INTERNET AND BROADBAND**

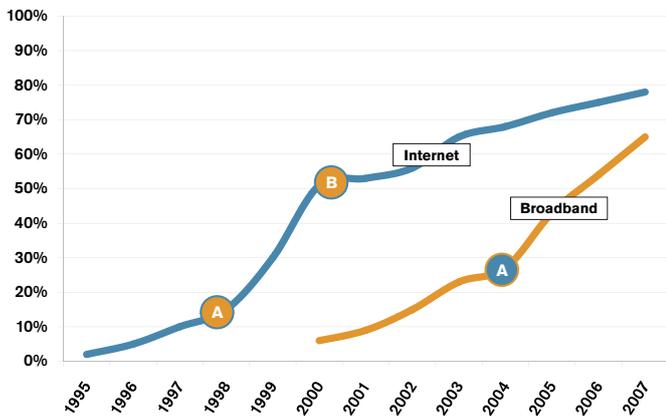


Diagram 1. Growth curve for the Internet and broadband in the Swedish population.

When we observe the development of broadband in Sweden, it began around the year 2000 and is growing steadily. But it waited until 2004 before taking off (A). Then a steep upward trend has lasted until today. We see no signs of a weakening trend. Initially DSL dominated broadband connections, but fiber optics networks were introduced at an early stage and had almost as large a piece of the market as DSL. The main increase in broadband hook-ups during the past few years is attributed to DSL, but also to cable networks.

**THE INTERNET HOOK-UPS ARE CHANGING THROUGH TIME**

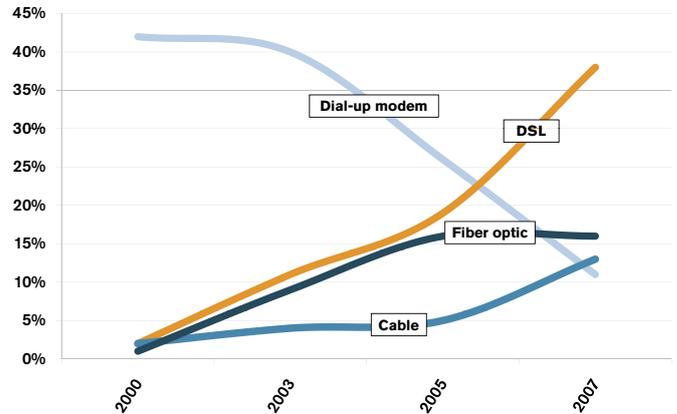


Diagram 2. Internet hook-ups change through time.

**WHO HAS BROADBAND?**

Initially, broadband growth was evenly distributed throughout different groups of the population. And that has continued until today. The digital divides, which were evident regarding the growth of Internet, haven't been as prevalent when it comes to which of the Internet users who obtain broadband. Partially because large neighborhoods in many cities installed broadband networks. There are certain differences, depending upon the level of education, between those with lower income, mostly because of age, but these differences are relatively small. Generally speaking, there are only small differences between those with higher and lower levels of education and between those with lower and higher income, in regards to access to broadband.

**ACCESS TO BROADBAND AT HOME AMONG INTERNET USERS, GROUPED BY INCOME AND EDUCATION LEVEL**

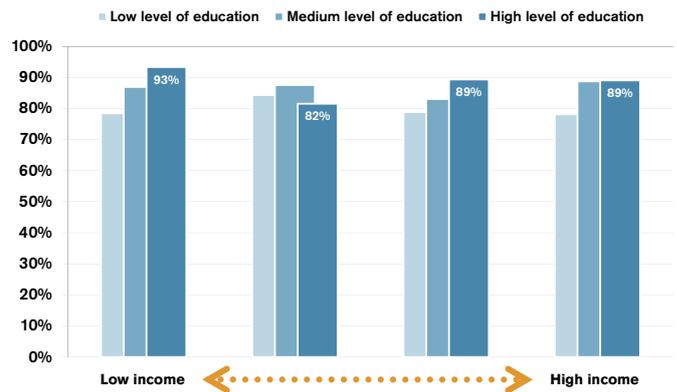


Diagram 3. Access to broadband at home among Internet users in different socio-economic groups.

Even if level of education and income don't seem to have such a large influence on Internet users, there is a very strong connection between age and interest in procuring broadband. Younger and middle-aged people have a very strong interest, while many of the older users do not.

**ACCESS TO BROADBAND AT HOME AMONG YOUNG AND OLD INTERNET USERS**

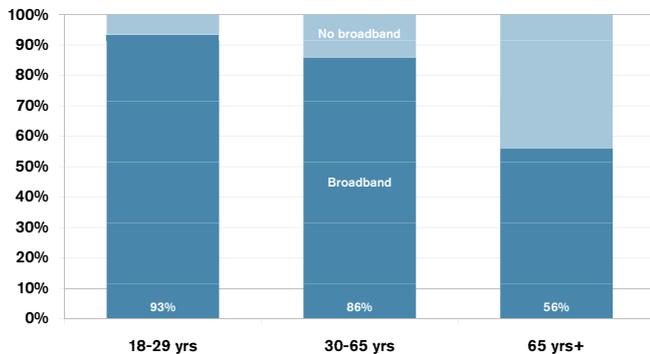


Diagram 4. Access to broadband at home among young and old Internet users

**WHY DON'T SOME PEOPLE HAVE BROADBAND?**

Most of those who have Internet would also like to have a broadband connection. But there are certain obstacles involved. The broadband network doesn't cover all of Sweden. There are still many people (31% of those without broadband) who live in places, which they state, are outside the area covered by the network. 28 % think that broadband is still too expensive, 16% have different personal reasons or equipment which is obsolete, 6 % don't have time to fix a hook-up or feel that having broadband at work suffices. One of five (19 %) is however disinterested and is satisfied with a dial-up connection.

**WHY NOT BROADBAND?**

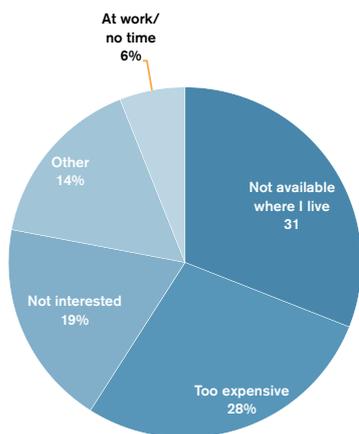


Diagram 5. Stated reasons for Internet users not having broadband.

There is a difference here between younger and older Internet users. The most common answer for the older users is that it's too expensive. The younger ones state that broadband isn't available where they live and a throng of other private and technical reasons.

**INTERNATIONAL COMPARISON**

In an international comparison from December 2005, Sweden was very low on the list of countries with many broadband users.

Almost all Internet users in Korea had broadband. In Iceland, Belgium, Portugal and Canada more than 80 % had broadband. In the Netherlands, Spain, Denmark, Japan, Finland, Hungary, France and Norway, around 70 %. The average for all the OECD countries was 60 % and Sweden was below that, together with among others the US and Germany.

**AMOUNT OF INTERNET USERS WITH BROADBAND 2005**

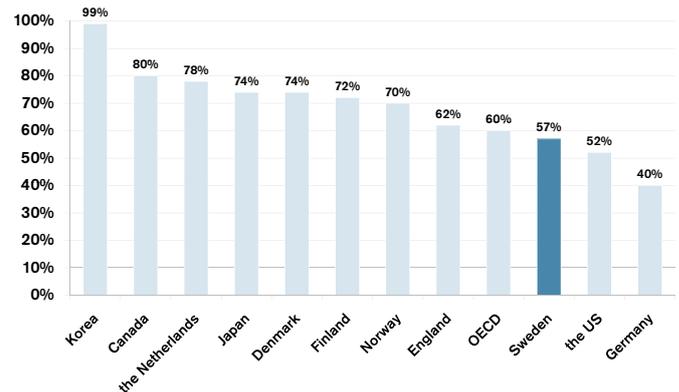


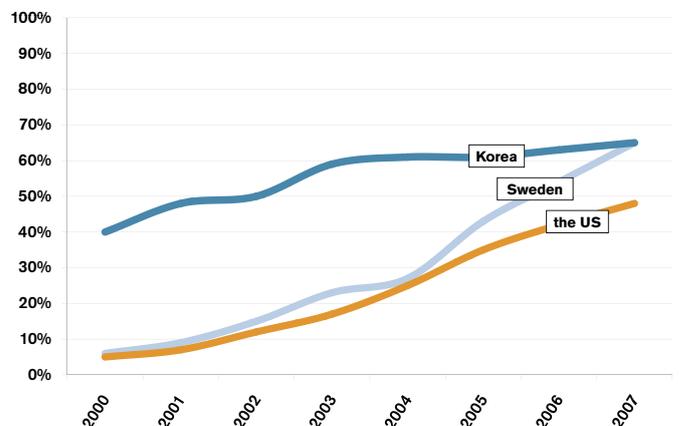
Diagram 6. Amount of Internet users with broadband in different OECD countries.

Source: OECD 2007

If we calculate instead the amount of broadband users in the population, Sweden is in a better position, because Sweden has relatively many Internet users. This tendency has continued at a faster pace after 2005 and Swedish broadband users are steadily increasing in numbers. If we compare the situation in 2007, Sweden has improved its situation noticeably. Today, 65 % of the population has access to broadband at home, which equals 85 % of all Internet users.

**GROWTH OF BROADBAND IN THE POPULATION 2000-2007**

Diagram 7. The growth of broadband in the population 2000-2007. A comparison of Korea, Sweden and the US.



Source: WII 2007, PEW 2007, MIC/NID Korea 2007

The most widely spread technology for broadband traffic in almost every country is DSL. Significant for countries such as Iceland, France, Germany and Italy is that virtually all broadband

traffic is via telephone landline (DSL). In some other countries, like the US and Canada, more than half of all users are online via cable. Large portions of cable users are also found in the Netherlands, Belgium, Korea, Austria and Switzerland. In Sweden DSL is dominant, followed by cable. Here, there are also quite a few (20 %) other techniques, mainly fiber optics. In this respect, with a spreading use of fiber optics cable, Sweden resembles Korea and Japan, where there are a lot of broadband networks besides DSL and cable. Regarding fiber optics cable, Japan has come the farthest, followed by Korea. In Japan, almost a third of the broadband subscriptions are in fiber optics networks.

### **DEVELOPMENT TENDENCIES**

The general trend in the OECD countries is that the cost of broadband is falling. When we compare with two years ago, consumers pay less today, while at the same time the network capacity has increased. Simultaneously, consumers' total cost for communication is increasing, counting both goods and services.

Price wise, Sweden maintains a good position, sporting the lowest rates for a slow broadband hook-up. Sweden, Norway, Denmark and Iceland share this position. According to a measure of competition between broadband suppliers (ECTA), the competition is greatest in the Netherlands, followed by Germany and Sweden. In Sweden, the general investments have decreased since 2004. Calculated over the period 2000-2005, Sweden holds tenth place (OECD 2007).

Access Is Not the Same as Use



4

When the Internet was introduced in the early 1990's, approx. 30% of the population had access to a computer. That was about as many as were interested in using one. To write, calculate or play games on. The growth of computer use had stagnated when the Internet was introduced, but accelerated again later. Not everyone who had a computer was, however interested in hooking up to the Internet. For many years, the difference between computer and Internet access was around ten percent. Today, this has decreased to six percent. That's the equivalent of almost a half million people who have access to computers, but not the Internet.

According to the table above, we can sum up the daily users to 5 million and those who are non-users or almost non-users to 2.3 million. Two of three adults can be counted as everyday users of the Internet and one of three are not.

**EVERYDAY USERS IN FOUR AGE GROUPS**

The relationship between users and non-users varies greatly if we compare different age groups. Everyday users comprise 85% of 18-29 yr olds, 82% of 30-45 yr olds, 64% of 46-65 yr olds and 24% of those over 65 yrs. The sum of daily users in the adult population is 67%.

**INTERNET USE IN THE POPULATION: OVER 18 YRS**

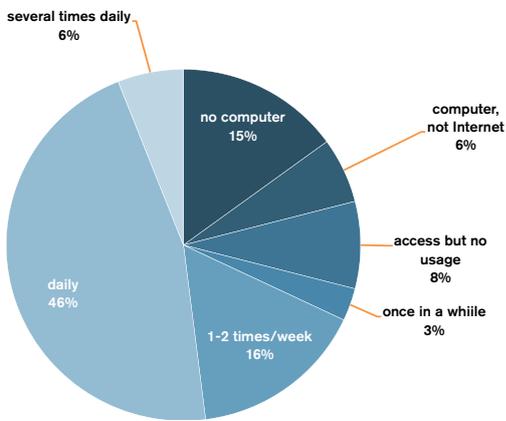


Diagram 1. Internet use: frequency in the adult population

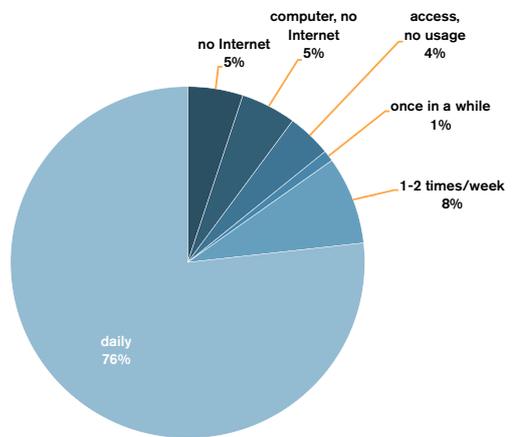
Having access to a computer does not necessarily imply automatic access to the Internet. And access to the Internet at home doesn't automatically mean that Internet is being used. 8%, or closer to 600,000 people state that they don't use Internet, despite having access. The reason can be that someone else in the family is constantly sitting in front of the computer. It may be the children in the household or sometimes the male adult.

3% have a very limited use of the Internet, or 200,000, despite having access. They use the Internet a few times a month or even less.

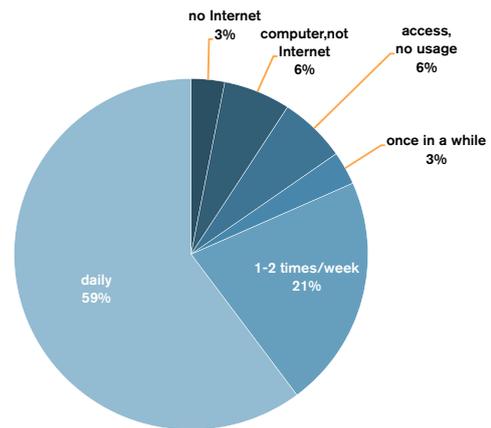
The next group, 16%, just over one million people, uses the Internet more regularly, at least a few times a week.

Over three million people (46%) are the daily users. They are using the Internet as a daily household activity. This is of course the same for the less than 500,000 people who use the Internet several times a day.

**INTERNET USE IN THE POPULATION: 18-29 YRS**

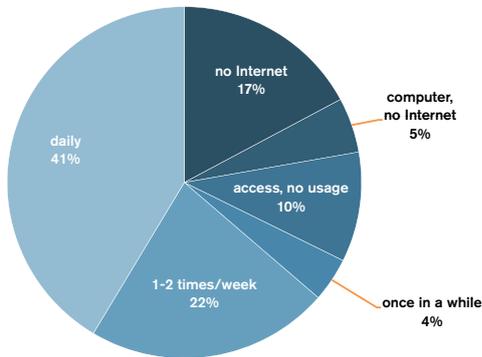


**INTERNET USE IN THE POPULATION: 30-45 YRS**

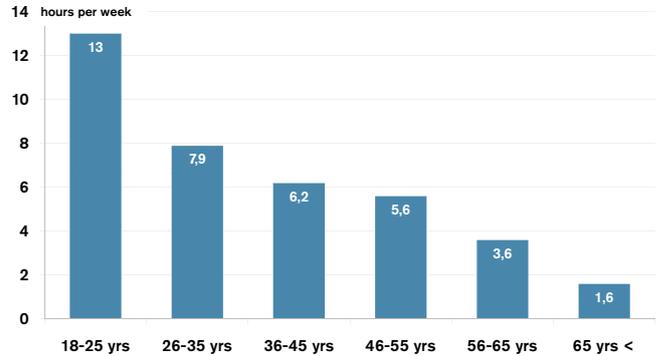


Have no computer	1 100 000
Have computer, not Internet	440 000
Have Internet access but don't use it	585 000
Seldom use Internet	200 000
Use Internet once or a few times weekly	1 170 000
Use Internet daily	3 360 000
Use Internet several times daily	440 000

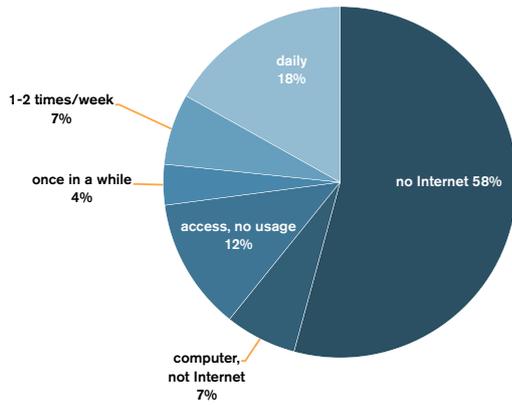
**INTERNET USE IN THE POPULATION: 46-65 YRS**



**HOW MANY HOURS PER WEEK THE SWEDISH PEOPLE SPEND ONLINE**



**INTERNET USE IN THE POPULATION: 65 YRS+**



**INTERNET USE IN DIFFERENT AGE GROUPS AMONG INTERNET USERS**

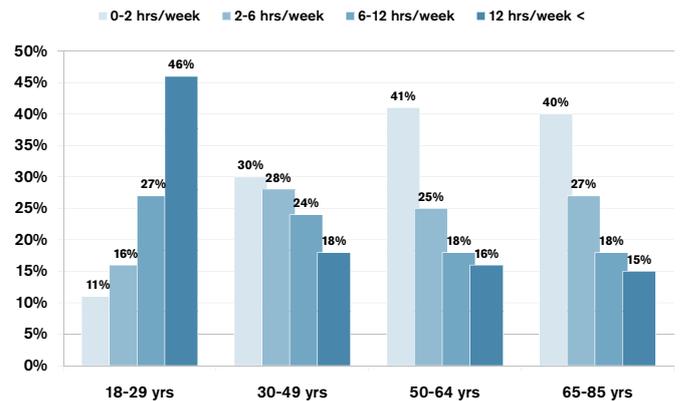


Diagram 2, 3, 4, 5. Internet use: frequency in four different age groups

If we sum up the situation and expand the diagram to include teenagers, school children and pre-schoolers, we observe that a lot has happened here also during the last few years. It is school children, and no longer the older teens, which make up the group with the most users. Among pre-schoolers, the amount of daily users has doubled in the last two years. (The information about the children's Internet use was received from their parents.)

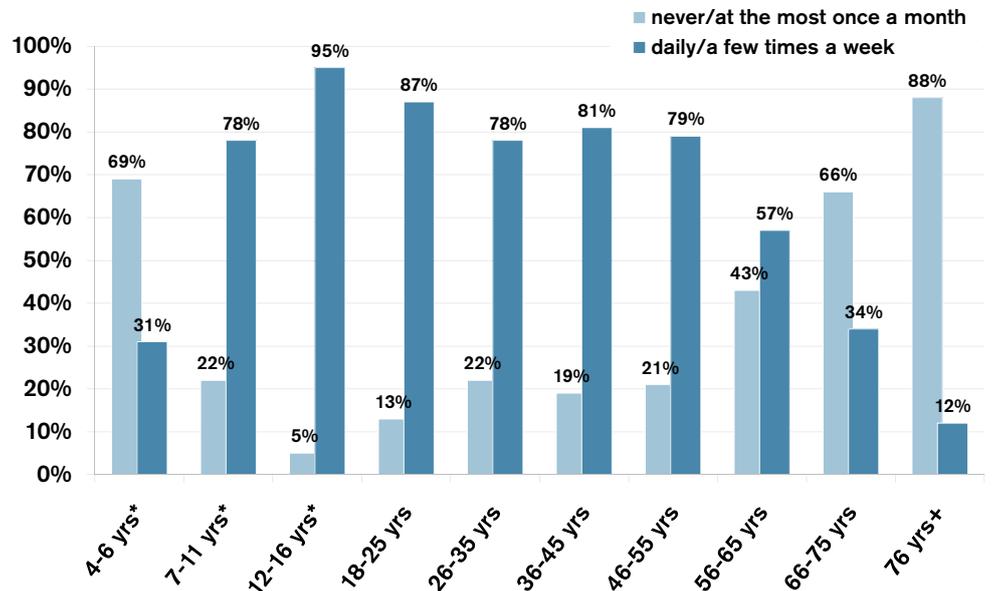


Diagram 6. Everyday Internet users from four to ninety years of age.

# The Internet Is Taking More of Our Time



# 5

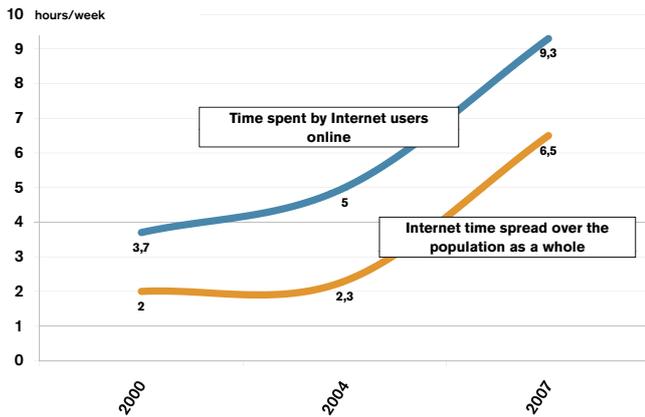


Diagram 1. Time online for Internet users 2000-2007

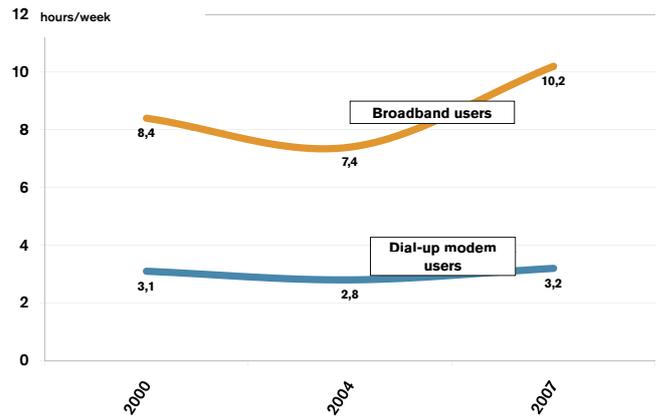


Diagram 2. Time spent online by broadband and modem users 2000-2007

As we've seen earlier, an increasing number of Swedes have access to and use the Internet. Simultaneously, the time they spend online in different activities is steadily increasing. The average user is in front of the computer 9.3 hrs per week, or 80 minutes per day. That's the equivalent of 6.5 hrs per week for the whole population, or almost an hour per day (56 minutes). Compare this to the fact that Swedes watch an average of 101 minutes of TV every day, read periodicals for 29 min., and listen to the radio for 109 minutes (Mediebarometern 2006).

Compared to the year 2000, time spent online has tripled during the seven years up until 2007. The biggest increase has been during the last three years. Simultaneously, use of other media has changed very little. In spite of more time spent online, Swedes watch about as much TV, read about the same amount of magazines and listen to the radio nearly as much as before.

	2000	2004	2007
Daily paper	31 min/day	29 min/day	29 min/day
TV	105 min/day	102 min/day	101 min/day
Radio	129 min/day	124 min/day	109 min/day

Table 1. Time online in the population 9-79 yrs on an average day  
Source: Mediebarometern 2006

But if we compare broadband users today with those who used it seven years ago, the difference in time online is not much. We've also seen that those who use a dial-up connection today are online approx. as much as the dial-up users were in 2000. The difference between 2000 and 2007 is that then there were only six percent of the population who had access to broadband. Today, 85% of Internet users and 65% of the population use broadband. This has caused the time spent online to triple. We conclude that it's the change from dial-up to broadband which has encouraged the increase in time spent online today.

### TIME SPENT ONLINE DIFFERS GREATLY BETWEEN THE YOUNG AND OLD

Far from everyone spends as much time on the Internet. There are big differences, mainly between younger and older users. The young spend almost ten times more time online than the elderly and a large part of this increase has happened during the last few years. Young Internet users have more than doubled their time online. A young Internet user in 2007 isn't the same as one in 2000.

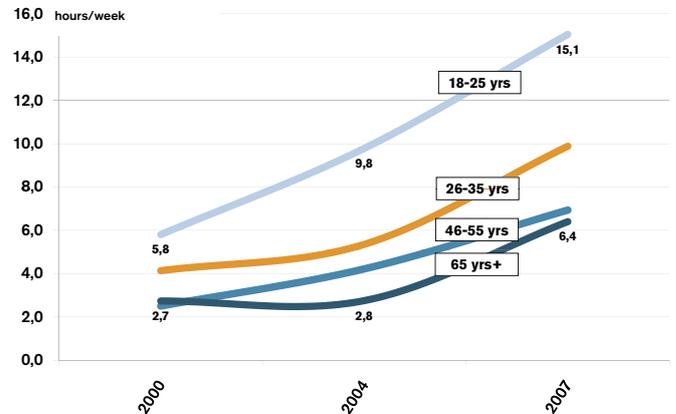


Diagram 3. Increase in usage time for the Internet in different age groups 2000-2007

In 2000, there was also a difference in time spent online between men and women. Men spent much more time on the Internet. This difference remains today. Both men and women have increased their access to broadband in the same way and they have increased their Internet use to about the same degree.

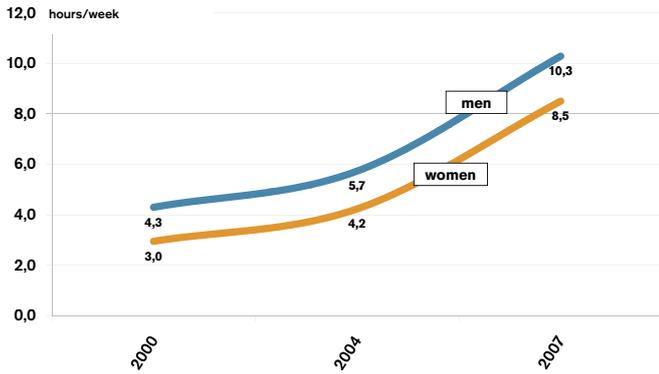


Diagram 4. Change in male and female online time 2000-2007

One characteristic for Internet usage in 2007 is, partly the transition from dial-up to broadband, and partly the Internet Generation's entrance into the adult population. They've grown up with the Internet in a totally different way than earlier generations and the Internet has a natural place in their daily life. Even if there are differences between the generations when it comes to watching television and reading newspapers, they never reach the same magnitude as those for Internet usage. Young people spend, on an average, almost two hours daily on Internet (13 hrs/week), while Internet time in the population over 55 yrs is thirty minutes and for retired people is 14 minutes.

**HOW MANY HOURS THE SWEDISH PEOPLE SPEND ON THE INTERNET**

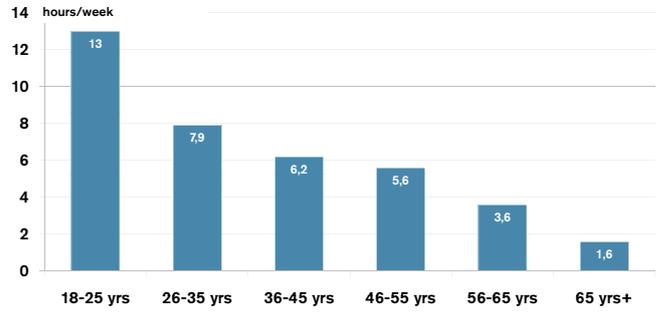
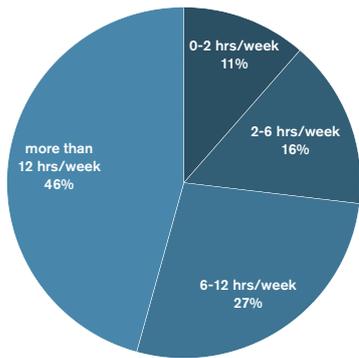


Diagram 5. Average use in the population in 2007

These large average differences don't mean that all elderly people hardly spend any time online. 15% of them spend more than 12 hours per week on Internet. But among young people it's 46%. However, there are also young people who spend very little time online. But not so many. 11% of the young people reveal a usage time of less than two hours per week. Among the older Internet users, over 55 years of age, the respective number is 40%.

**TIME SPENT ONLINE 18-29 YRS**



**TIME SPENT ONLINE 50-65 YRS**

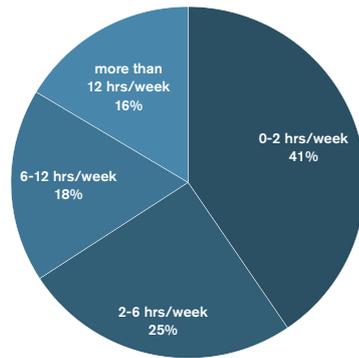
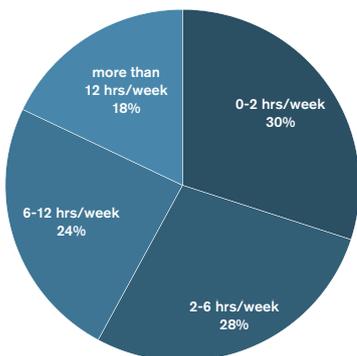
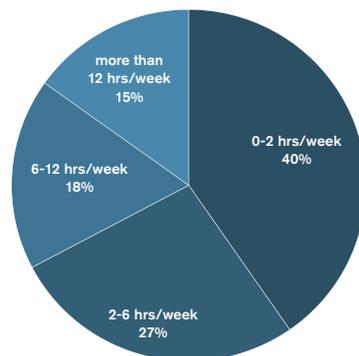


Diagram 6, 7, 8, 9. How much time do Internet users of different ages spend online?

**TIME SPENT ONLINE 30-49 YRS**



**TIME SPENT ONLINE 65 YRS+**



## PORTRAITS OF SOME EXTREME USERS

### Maximum user

How does the extreme user behave? Those who are online at home more than 100 hours per week, that's about 15 hours per day. Let's take a closer look at the four people who are at the top. One woman and three men. The woman is a student and the men are unemployed.

#### Male, 27 yrs, unemployed.

He's single and computers are his main interest. He is dyslectic, which makes it more difficult to use the Internet. He goes online to look for work, read the news and buy music. Internet is, for him, the most important source of both information and entertainment. He has his own website and blog, which he visits several times daily. He has also shared files earlier but doesn't any longer.

#### Male, 24 yrs, unemployed.

He is single, with computers as his main interest. He downloads games onto his cell phone, music and movies via the Internet. And he uses his media player daily. He looks for work via Internet, and uses it for hobbies, radio, reading news, facts, schedules and file sharing. He buys music about like before. He's involved in online social communities and gives the communication possibilities of the Internet highest priority. Internet has given him new contacts and some of these he has met in real life.

#### Female, 19 yrs, student.

She listens to music on her cell phone, retrieves music by file sharing, which has led to her buying more music than before, even some that she's downloaded. That goes for videos also. She communicates several times daily via MSN, and uses the Internet daily for news, information about travel, health, games, video, radio. She checks facts and looks up word definitions. She also has her own blog, which she updates daily.

#### Male, 35 yrs, unemployed.

He surfs the web daily to look for work and for games and hobby activities. He also reads magazines and news. He downloads music daily via his cell phone and Internet, also movies. He watches these on his media player. He buys music downloads sometimes and says he buys about as much as before. He uses MSN and e-mail several times daily. His Internet activity has caused him to spend less time in person with friends.

### Mini-user

What do mini-users look like? Those who have access to the Internet, but who seldom or never use it? There are an estimated 700 000 who don't use the Internet, though they have the opportunity, since they have a hook-up at home. Another 700 000 have access but only go online occasionally. Here's a closer look at some people who can exemplify the group, mini-users.

**Female, married without children, 63 yrs.,** who got Internet at home in 2005. At work, she's had a computer since 1997. She can do things there that aren't directly work-related. But her usage of the Internet is very limited at work and even more limited at home. She has a personal computer, with a cable modem and feels quite "computer capable". She



has a cell phone, which she only uses sometimes for short conversations. She is less educated and her main interest is gardening. She spends most of her time reading books. And when she uses the Internet, which is seldom, it's for, besides e-mail, finding information about culture, hobbies, products, facts, periodicals, travel, and tickets. She states that she feels a part of the new information society, but has no need to use the Internet more than she does now.

**Female, single retired, 58 yrs.** She doesn't have a digital camera or DVD. She has a cell phone, which she seldom uses. She has a laptop, which she began using in 2005, but only goes online every now and then. She says that she's not very computer savvy and doesn't know how to send e-mail. When she occasionally uses the Internet, it's to get information about travel, culture or various products. She has never made an online purchase since she's afraid of online fraud. She has a college education and is a member of a society for the hearing impaired, which has its own home page. Her main interests are hiking and she spends a lot of time with friends, also reading magazines. She doesn't feel at all active in the new information society, but would like to use the Internet more than she does today.

**Female, college educated, cohabiting, 27 yrs.** Has a big interest in music. She has Internet at work and she uses it several times daily. She feels that her productivity has increased. She occasionally works from home, but it hasn't led to her being at work less. She has a cell phone and sends SMS a few times per week. She may go online via her cell phone in order to check the weather. She also has access to a laptop at home, but seldom uses it. She doesn't regard herself as particularly computer savvy and isn't at all satisfied with the speed of the Internet hook-up she has, using the dial-up modem they bought in 2003. But she's interested in broadband. She listens to music on CDs and the radio. She might also listen to music and watch movies on Internet, and listen to music while she's using the Internet. E-mail, information about timetables, tickets, using dictionaries and checking facts are activities that she uses the Internet for, besides news and reading e-zines. Is a member of a historical society that has its own home page. She has never purchased anything from the Internet and doesn't believe that it's secure. She worries also about the risk of Internet leading to increased control and monitoring of citizens. Otherwise, she's very satisfied with the Internet, but regards herself as only partially active in the new information society. The Internet hasn't become very important for her and she doesn't want to use Internet more that she already does.

#### Single female, retired, 66 yrs.

She has no morning paper, but reads a tabloid sometimes. Her main media consumption is literature and TV, which she watches on cable. She has a cell phone that she only uses for short conversations. Never SMS. She has a computer in the bedroom, hooked up to Internet via a dial-up modem she bought in 2001. Uses the Internet sporadically. Isn't interested in broadband. Never shops via Internet and is worried about credit card fraud and computer virus attacks. She has a high school education and is interested in handicrafts and reading. She is a member of the Swedish outdoorsman society, which has an active website. She doesn't feel a part of the new information society, but would like to use the Internet more if she had the opportunity.

The Range of Internet Use  
Is Expanding, but also  
Individual Differences



6

It's inadequate to regard the digital divide as a simple division between those who access Internet and those who don't. The digital divide exists on different levels and it's necessary to observe how Internet is being used. The original reasons for the early users to go online aren't enough to attract those who are disinterested today. This is a question of a development where the Internet is constantly evolving, with a growing selection and new possibilities and, in the same way, Internet users are changing, with increasing experience and growing skills. These experiences can also be negative because of technical problems and rising costs, or just the feeling of too much time wasted in using it. The Internet is a moving target. For the users, there's both negative and positive feedback.

But the main trend is that, while the Internet has spread to larger numbers of users, the use of Internet has become more nuanced and varied. New possibilities and services have evolved, particularly in the entertainment branch and, when it comes to user-generated contents. If Internet usage in the mid-90's, somewhat exaggeratedly, could be distinguished by mostly e-mail and a few web pages with information, that picture doesn't fit anymore. Internet has become a medium for communication, information and entertainment, where to a certain extent the users themselves create the contents.

The most common activities that the Swedish people are using the Internet for are, in this order, sending and receiving e-mail,

reading news, looking up information about schedules and addresses, product information, about travel, controlling facts and reading newspapers on the Net. They also pay bills online and surf around. Internet users did much of this in 2000 also. But today almost everyone does it: 93% use e-mail, 87% read news, 86% look up information about schedules and products, 79% read an e-zine and the same number visit websites associated with hobbies and special interests; 78% of Internet users pay their bills online. Information is thus still of paramount importance to Internet users in 2007. But today there are also a lot of possibilities to communicate via the net while the array of all kinds of entertainment has become more easily accessible on the Internet, as even the traditional media. Lets look closer at who's utilizing the Internet's communicative possibilities, Internet as a resource for practical assistance and fact bank, Internet as a source of information, Internet as a source of entertainment and Internet as a possibility for a user to produce some content the and actively partake in the construction.

In the following tables, we compare who's been trying out the different possibilities, calculated from the general population, from those who use the Internet, from young people between 18 and 29 years of age, from file sharers, who will represent a very advanced group of users, and finally from the older Internet users (over 65 yrs).

PPROPORTION OF THE POPULATION WHO HAVE USED THE INTERNET FOR DIFFERENT ACTIVITIES

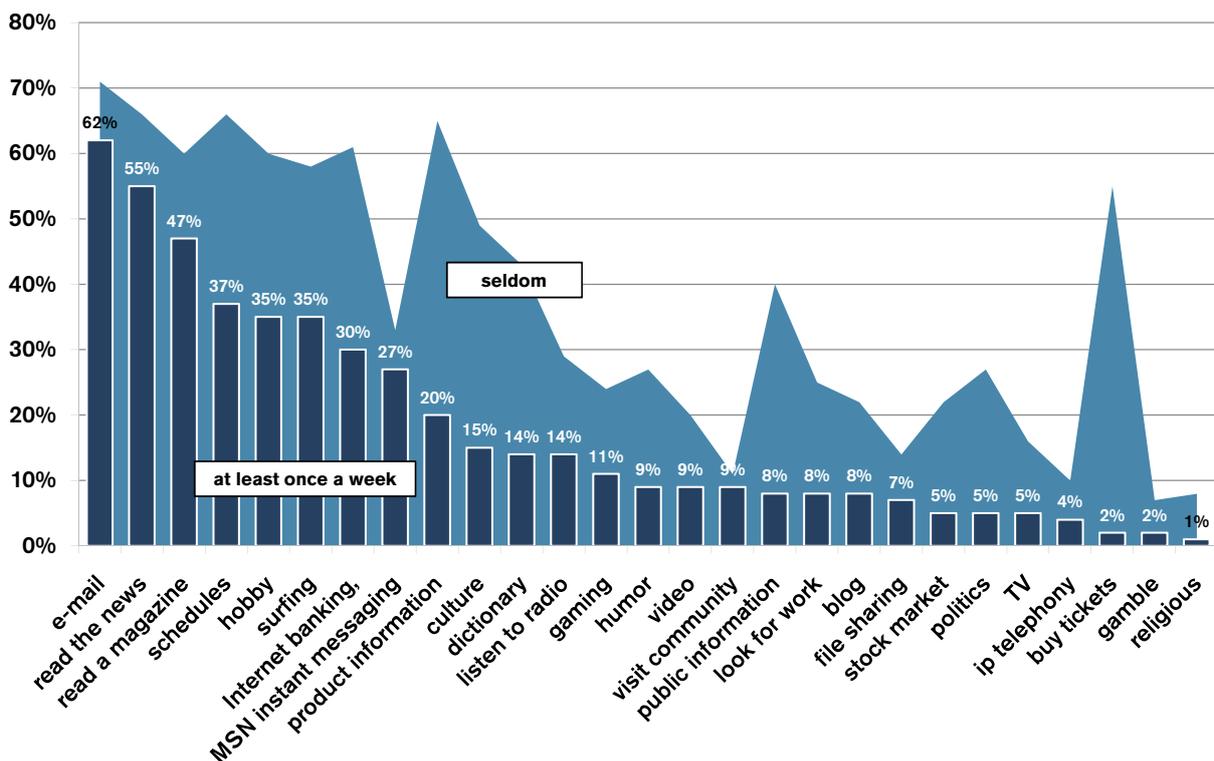


Diagram 1. What do Swedes do when they use the Internet?

### COMMUNICATION ON THE INTERNET

The traditional method of communicating on Internet is to send letters. E-mail reaches its destination almost immediately, but the answer may take time in coming. In instant messaging (ICQ, MSN) the addressee is most often available (it's possible to see if the person is online) and can answer the text message immediately. Several people can be in contact simultaneously. When several people participate, it's sometimes called a chat, a kind of virtual conference, where you can participate in a chat "room" with others. Communication on Internet doesn't need to be text-based, however. You can communicate by voice, like on a telephone and if you want to, visually, using a web camera.

Audio communication is what cell phones were initially used for. But you can also use them for sending text messages, SMS, and for sending images with MMS.

	% of pop	% of I-net users	file sharing	65+
e-mail	71%	93%	98%	73%
chat	9%	12%	19%	2%
instant messaging	33%	43%	75%	10%
telephone via Internet	10%	13%	27%	4%
SMS	73%	79%	97%	30%
MMS	33%	35%	56%	4%

Table Percent of different groups utilizing communication possibilities on Internet

How often you communicate with others, using different techniques, has an obvious connection to age. The younger you are, the more often you communicate and the more different techniques you use. Today, everyone uses e-mail. The dividing line is to what extent you use the new possibilities for direct communication via text messaging, instant messaging, like MSN and ICQ. Those have become the new Internet generation's medium. A mode of communication that isn't utilized by other generations.

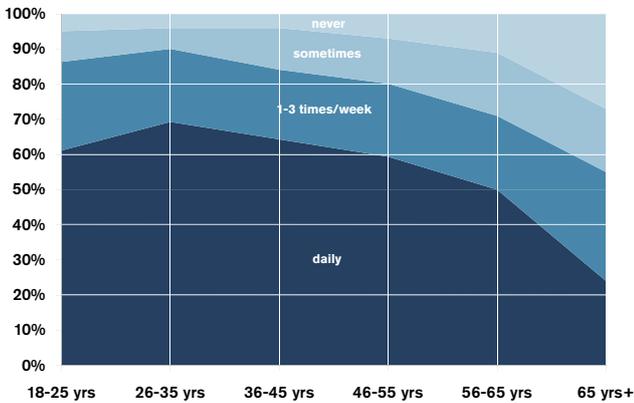


Diagram 2. How often do Internet users use e-mail?

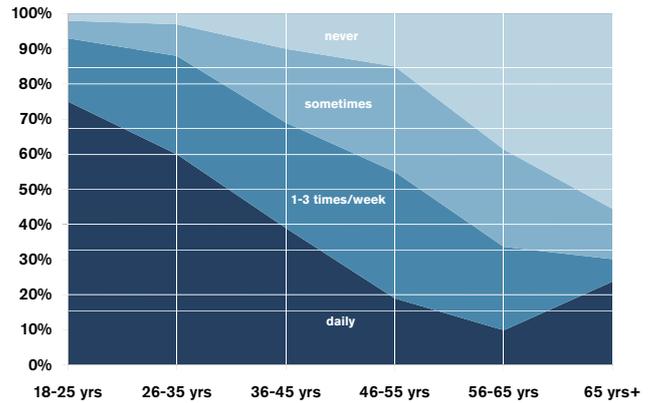


Diagram 3. How often do Internet users use SMS?

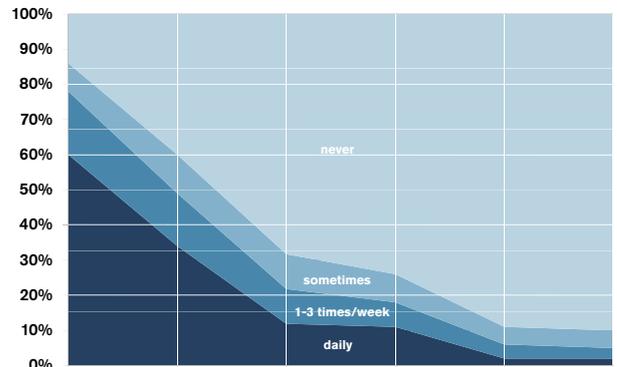


Diagram 4. How often to Internet users use instant messaging?

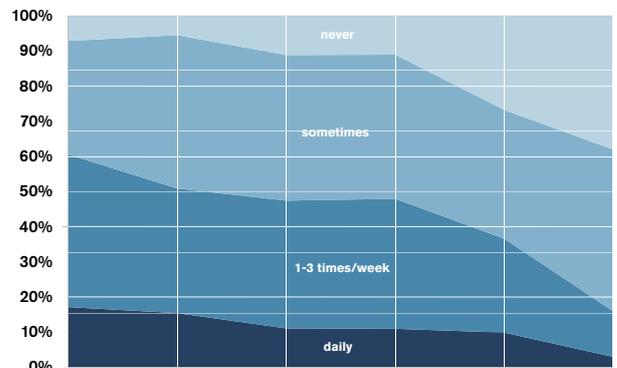


Diagram 5. How often do Internet users seek information about schedules, movie theaters, telephone numbers, addresses, and TV programs?

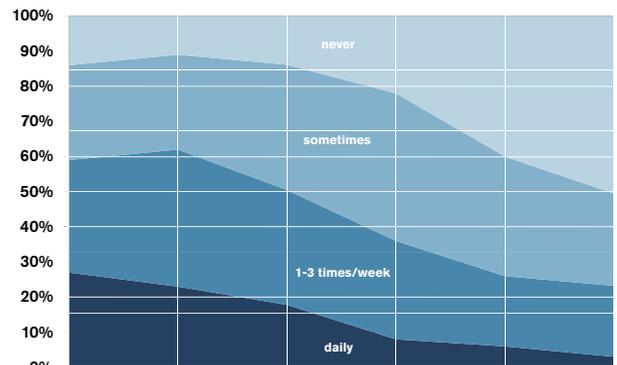


Diagram 6. How often do Internet users seek information pertaining to a hobby or special interest?

Percent of Internet users who Used Internet for	total	18-29 yrs	file sharing	65+
Information about timetables, movies, phonenumber, address, TV-shows	86%	93%	98%	62%
Information about a product	86%	90%	96%	62%
Information about travel	81%	83%	89%	64%
Search for, and control facts	79%	88%	93%	57%
Check for meaning, spelling and translation of words	56%	65%	77%	30%
Health and medical information	54%	58%	60%	37%
Culture and literature	64%	64%	79%	49%
Political information	36%	43%	51%	27%
Information about hobbies and special interests	79%	86%	93%	50%

### DATA BANK, LIBRARY AND PRACTICAL AID

Internet has proved to be a great place for information that's updated often and also for large databases. Dictionaries and reference literature can be made easily accessible. For it to work, enough people need to be able to access this possibility. One of the consequences of this may be that the updated information is only available on the Internet, making it a problem for those who can't go online.

As we can see in the table, almost all Internet users are getting information over the Net, about products and travel, facts and schedules and addresses. The Internet is also often used as a dictionary and language aid. These everyday users take it for granted that the information is freely accessible.

### INFORMATION

Classic Internet use was, and still is, to look up a web page with information about something you find interesting. It was and still is often something related to one's own interests. In fact, you could say that people's hobbies are the most important driving force for their Internet use, except for the need for communication. This is where they invest the most time. This applies to all users, young or old.

### PUBLIC WEBSITES

Authorities and public administration have during the last ten years invested in making information available and in broadening the democratic process with the help of various Internet services. How often do Internet users communicate with or search and download information from government and the Riksdag, state or local authorities or the municipal administration? In 2003, when more than half of the Swedes had access to the Internet, there were around one of three (34.5%) who used the Internet for such contacts or information (WII, 2003). A few years later, in 2007, there are four of ten who have found information from the national government, municipal or other authorities via the Net. But, if we ask that these contacts shall have taken place at least within a month, the portion who contacted any public website sinks to one of five (19%) in the population or one in four (24%) of the Internet users. So even if there are people who have discovered and regularly visit these sites, there is no real recurring use of them. Whether this is due to a lack of interest from users or if updated, public, interactive websites, with useful information are missing, is a resulting question, which we cannot answer in this study.

How often have Swedes accessed public information from the state or local authorities?

<b>Never</b>	<b>60%</b>
<b>Now and then</b>	<b>21%</b>
<b>At least once a month</b>	<b>11%</b>
<b>At least once a week</b>	<b>6%</b>
<b>Daily</b>	<b>2%</b>

Who, then, is using the Internet to search for and read information from the public authorities? Well, these persons are found in all strata of society, but income and education play a large part. It's three times as common among those with high income, compared to those with low income and three times as common among the highly educated as opposed to the less educated. (sign >0,001). For the middle-aged (30-54 yrs), the differences are shown below; only 7 and 9 percent of the less educated with low income have accessed government or official public information via Internet, while 42% of the highly educated with high income are doing the same.

	Low income	Low-middle income	Middle-high income	High income
Low level of education	9%	7%	22%	18%
Medium level of education	12%	10%	19%	30%
High level of education	13%	18%	34%	42%

Table showing how common it is, in ages 30-54 yrs, to use Internet for reading public information from state and local authorities

### DIGITAL SIGNATURE

The Internet makes it possible to simplify many contacts between authorities and citizens. The most successful authority in this respect is the Swedish National Tax Board, which has succeeded in getting a third (32%) of our respondents (according to the Tax Board stats it was 30% of the population), or 43% of the Internet users, to file their tax returns via the Internet. In order to simplify contact with the authorities, Internet users are given the opportunity to get an electronic signature. In our survey, 40% of the Internet users claim to have such a form of identification. It is used primarily for income tax purposes in correspondence with the tax board, but also for various banking tasks, for example paying one's bills. Students use e-signatures in contacting the The Swedish National Board of Student Aid

(CSN) and parents use it to access the national health insurance office. In other contexts, like contacting other officials or for commerce, e-signatures are used much less frequently.

**WHAT ARE E-SIGNATURES USED FOR?**

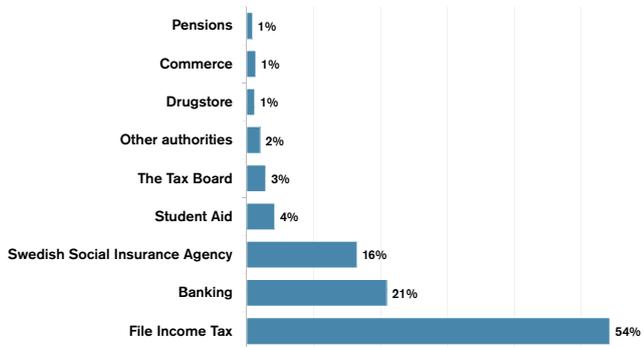


Diagram 7. Percent of Internet users who use e-signatures to contact different authorities

Those who mainly use e-signatures to simplify contacting banks and authorities are the middle-aged, well educated. Half (55%) of them utilize this possibility, while the number of less educated is around 20%. There is no difference between men and women.

age	18-25	26-35	36-45	46-55	56-65	65+
Low level of education	23%	21%	27%	17%	18%	2%
Medium level of education	29%	41%	43%	31%	19%	5%
High level of education	45%	51%	55%	40%	26%	9%

Table Percentage of the population who has an e-signature. Based on different level of education and age.

**ENTERTAINMENT**

Initially, the Internet as an entertainment medium was rather unknown, even if there were jokes and funny stories circulating. Today, music, video and movies can, aided by the increased capacity of broadband, be up- and downloaded everywhere. The selection is immense and easily accessible. Young Internet users have discovered this. The older users are more reserved. Gaming online is something that mainly younger users devote their time to. Consequently, we have a new area, which distinguishes the young from the older Internet users.

Percent of Internet users who access it for	total	18-29	file sharing	65+
Listen to or download music	45%	66%	92%	13%
Watch or download video	27%	45%	68%	5%
Humor and jokes	36%	51%	64%	13%
Gaming	33%	44%	56%	18%

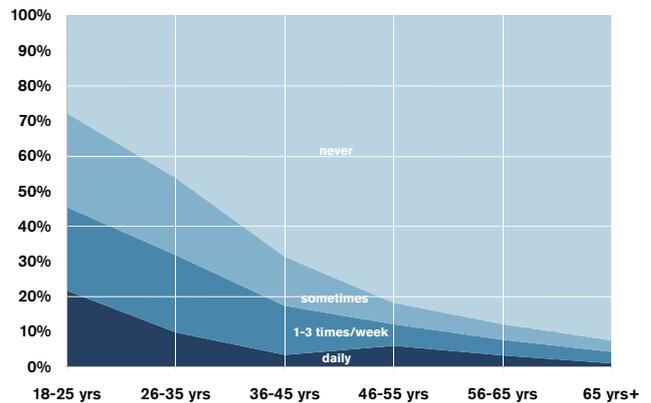


Diagram 8. How often do Internet users listen to or download music from the Internet?

**FILE SHARING**

A smart way of sharing with others is to reserve part of your computer hard drive for content that you want to make accessible for others. Then you connect the computers and if there are enough people in the network, you get a huge variety and manifold contents to choose from for downloading. However, nothing actually leaves the computers, the copies just flow freely.

Everything would be well and good if it weren't for the fact that copyright laws protect part of the contents being shared on these networks. You can make copies for different playback techniques, and you can share with your family and close friends. But what happens on the Internet when your computer is open to the world?

File sharing, as a way of obtaining new music and movies, spread quickly among youngsters and the amount of file sharers is constantly increasing. Today, 14% of the population does file sharing. That's about one million Swedes. To these can be added a group who have quit sharing files, but may resume at some time in the future.

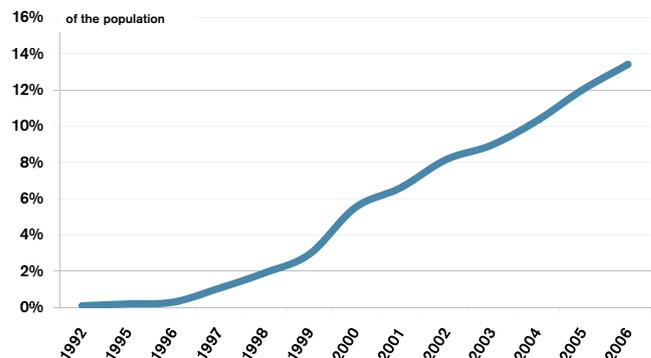


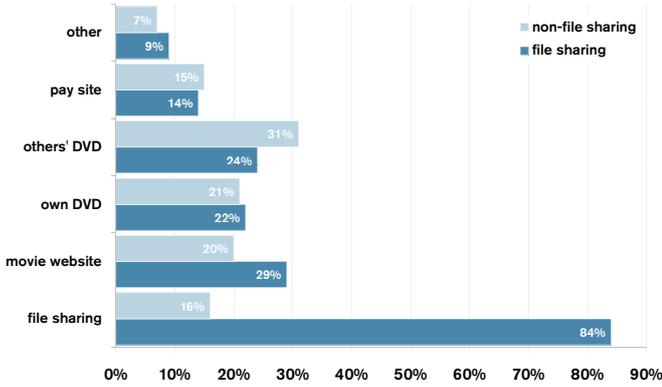
Diagram 9. Increase in file sharing in the Swedish population 1992-2006

(Data based on stated initiation of file sharers' activity)

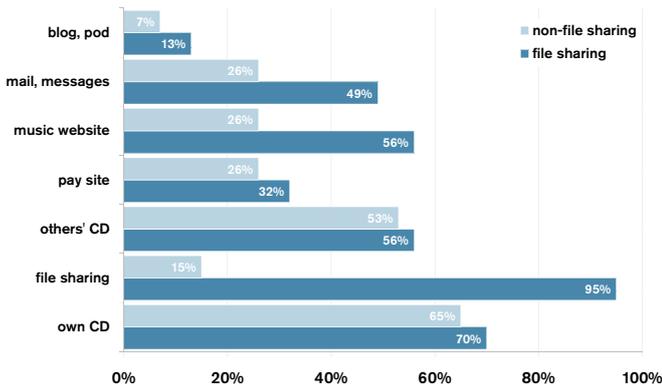
It's important to remember that file sharing is just one of many methods of sharing digital music and images. The most common method, regarding music, is to copy from your own or others' CDs. Music is also sent by e-mail or is downloaded from special music sites. Those who share files also use, besides their

file sharing networks, all the other methods at least as often, if not more, than others of the same age. The same goes for pay sites.

**FROM WHERE DO YOUNG PEOPLE (18-29 YRS) RETRIEVE THEIR DIGITAL MOVIES?**



**FROM WHERE DO YOUNG PEOPLE (18-29 YRS) RETRIEVE THEIR DIGITAL MUSIC?**



Diagrams 10 and 11. Show from where young people get their movies and music

Even if file sharing occurs in all age groups, young people dominate. It's also much more common for men to file share than women. 55% among the men of age 18-25 yrs file share compared to 24% for the women of the same age.

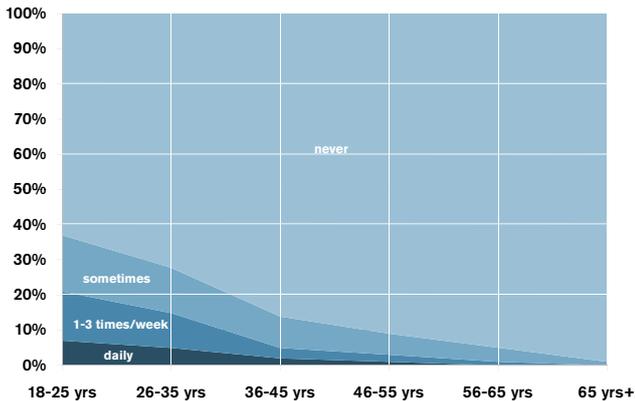
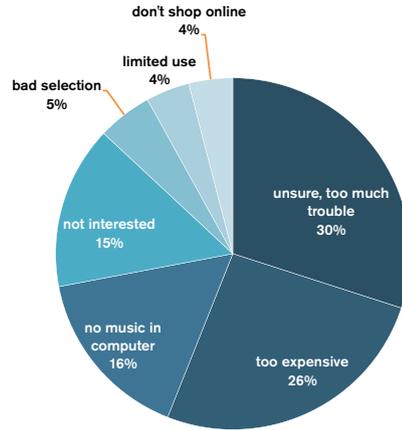


Diagram 12: How often do Internet users file share?

What then are the reasons for file sharing? Well, because it's easy, cheap, offers a very large selection and lets you listen before buying (Findahl, 2006). And what are the reasons for not utilizing the existing pay sites to buy music and movies? Well, because it's not easy, the selection is limited and the price is too high. Besides, there are limits (DRM-protection) to how you may use the music.

**WHY AREN'T PAY SITES FOR MUSIC MORE POPULAR?**



**WHY AREN'T PAY SITES FOR MOVIES MORE POPULAR?**

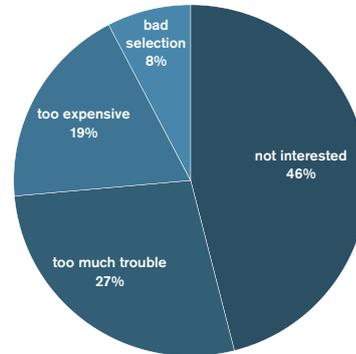


Diagram 13 and 14. Why aren't pay sites for music and movies more popular?



When asked if file sharing led to buying less music or movies than usual, file sharers answer that they purchase about the same as before. One group says that they buy more and a larger group says that they buy less. The result is a negative trend. The implications of all this music reaching a much larger audience are more difficult to pinpoint.

When we look at the amount of purchases that file sharing people make, compared with their peers who don't file share, we find that there is a group who never buy music (25%). But we can also see that among file sharers there's a group (23%) that buys a lot of music. This is a relatively larger group than among the non-file-sharers of the same age.

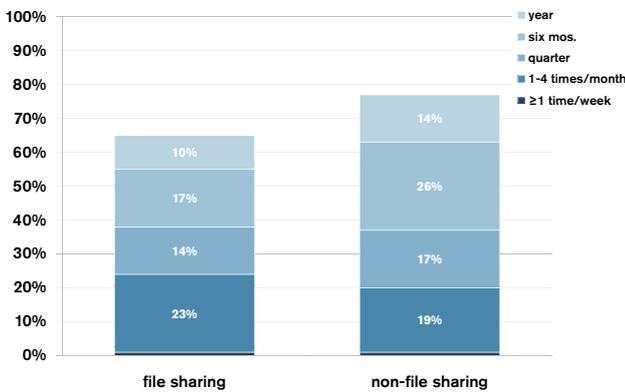


Diagram 15. How often do file sharing users and non-file sharing users buy music?

### PERSONAL HOME PAGES, BLOGS AND COMMUNITIES

The earliest method to show others online who you were, what you did and what you thought, was to create your own personal

home page. You could publish text and pictures that family, friends and other people could read. Blogging is a continuation of this, specializing on narrative and opinions that are recurrent, where there is often a possibility to comment interactively. The lines of distinction are fuzzy however, and what was actually intended with blogs varies from country to country and user to user. Let's begin by looking at what's available and compare different groups. We've included groups that are more advanced than average: Youth, file sharers in general, daily file sharers, and pioneers, meaning people who began using Internet in the 1980's (Findahl & Selg, 2007). We also include a comparison with Internet users in the US (Pew, 2007).

As we can see in the table below, the overwhelming majority is still not included in so-called web 2.0 activities. They don't actively participate in producing content for blogs and communities. 7% of the adult population have a personal web page, which is about 500 000 people. 3%, or 200 000, have a personal blog and 11%, or 800 000, are member of an online community. There is a predominance here of young people. In the population as a whole, 52% are member of a club or society, where there is a home page available for the club members. The differences here are less that between the age groups, even if the oldest and those with less education aren't members of as Internet-active clubs. Among youth, web 2.0 activity is many times more usual and if we go to groups of advanced users, like the daily file sharers, every other user is a member of a community, and among the experienced pioneers, virtually all are community members. Having a personal blog seems also to be more common among the younger users.

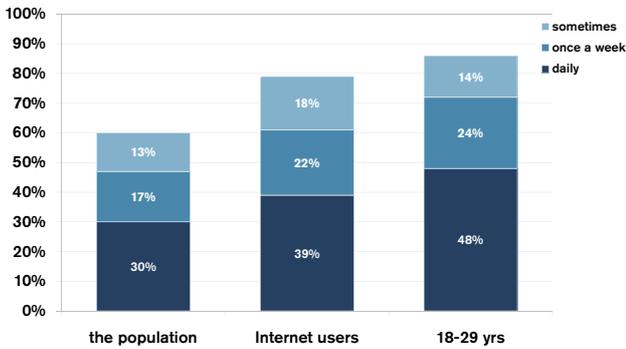
Most people who are members of a web community post information. 90% of members, no matter what age, contribute actively at least sometimes. There is a slightly larger group of daily contributors among the young users.

	US % of pop	Sweden % of pop	18-29 yrs	File sharing	Daily file sharing	Pioneers
Personal website	14%	7%	12%	22%	32%	
Personal blog	8%	3%	7%	10%	12%	
Personal domain		4%	5%	13%		
Member of online-community		11%	34%	36%	51%	100%
Member of association		52%	39%	43%		100%
Member of association with website		38%	33%	36%		100%
Visiting community daily or at least weekly		11%	34%	36%	51%	100%
Own contribution to community daily or at least weekly	13%	5%	13%	15%	50%	39%
Updating blog at least monthly		84%	89%	74%		
Publishing pictures online for family and friends		40%	65%	76%	80%	
Publishing pictures online to the public	21%	12%	31%	36%	56%	
Reading other peoples blogs	39%	22%	43%	47%		

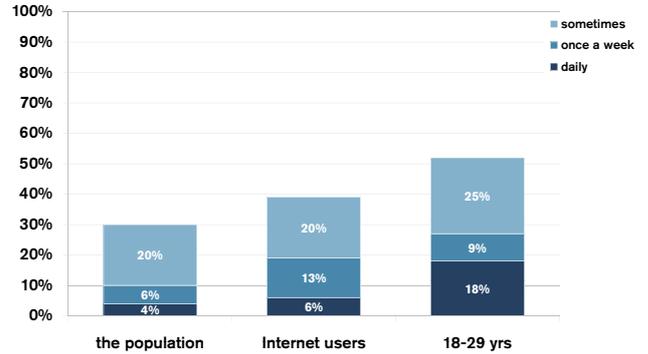
**OTHER TRADITIONAL MEDIA VIA INTERNET**

Internet is no longer just a bunch of web pages produced for the net, but as we've seen also a distribution channel for music and film. But traditional media, like newspapers, radio and TV are now also available online over the Net or downloaded as pod casts. How common is it now, to use these possibilities? As we've already seen, reading newspapers on Internet has become a central part of the Internet user's daily life. 79% of Internet users do it at least sometimes. That means that 60% of the population read net news. 50% do it daily or at least a few times a week. Music and radio programs are also prevalent with the younger Internet users. Almost half of them do it, if not daily, at least sometimes. Video shorts have become a part of Internet even if watching TV is still very limited. It has no daily group of viewers, not even among young users.

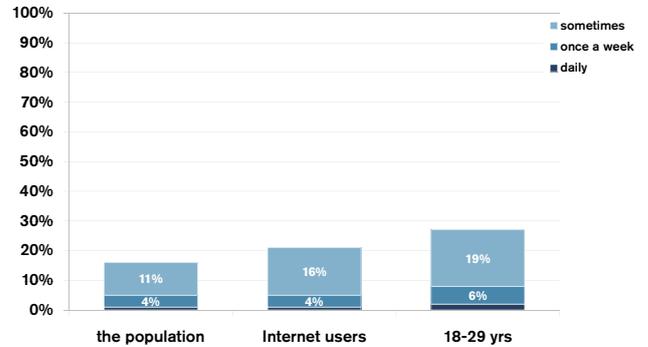
**NEWS AND MAGAZINES ONLINE**



**RADIO ONLINE**



**TV ONLINE**



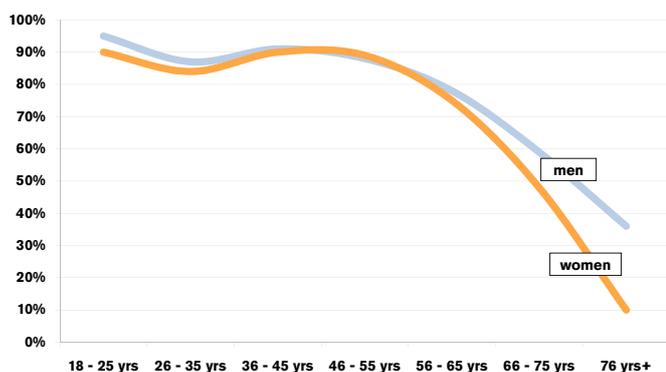
Women and Men



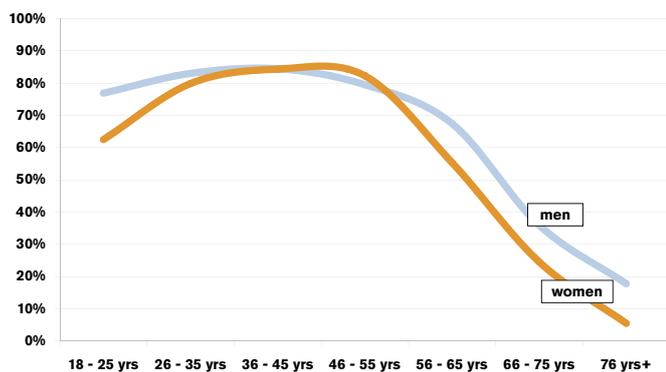
7

New technology is often embraced first by young, well-educated men. So it was with computers in the late 1980's and early 90's, and then, from the mid 1990's, with the Internet. Even at the turn of the millennium, when half of the Swedes had obtained access to the Internet, male users still had a head start. This was particularly evident among youngsters and the elderly. Among middle-aged men and women however, the discrepancies were small. When Internet use continued to grow, the digital divide between men and women closed a little, and today, in 2007, the difference in access has almost entirely disappeared. There are still differences between men and women among retired people, and between young men and women. Here the young men have almost entirely attained access to the Internet. Young men have also more access to web 2.0 activities, such as blogs, communities and their own home pages.

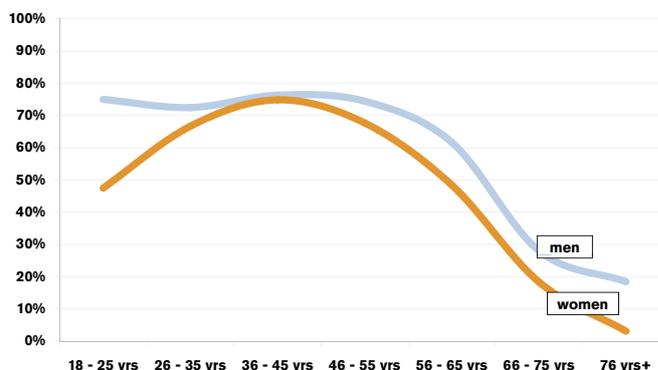
**ACCESS TO THE INTERNET AT HOME  
AMONG MEN AND WOMEN 2007**



**ACCESS TO THE INTERNET AT HOME  
AMONG MEN AND WOMEN 2003**



**ACCESS TO THE INTERNET AT HOME  
AMONG MEN AND WOMEN 2000**



Even if the difference in access has disappeared, there are large differences in how men and women use the Internet. Men invest much more time in their Internet usage compared to women. This applies to the Internet at home and in public places, such as libraries (double the time spent by women). This applies even to the Internet at work and in general for almost all activities and types of use.

	18-29 yrs	30-65 yrs	65 yrs and older
Men	15 hrs/week	7,2 hrs/week	7 hrs/week
Women	11 hrs/week	6,5 hrs/week	5,5 hrs/week

Table. Average time spent by men and women on the Internet.

This discrepancy between men and women, in time spent on the Internet, already existed in the late 1990's. Beginning with the difference in the year 2000 and following the development for seven years, we find that the difference hasn't changed. Both men and women invest almost triple the time on the Internet today as they did seven years ago. This increase has mainly happened during the last few years, simultaneously as more people have acquired broadband.

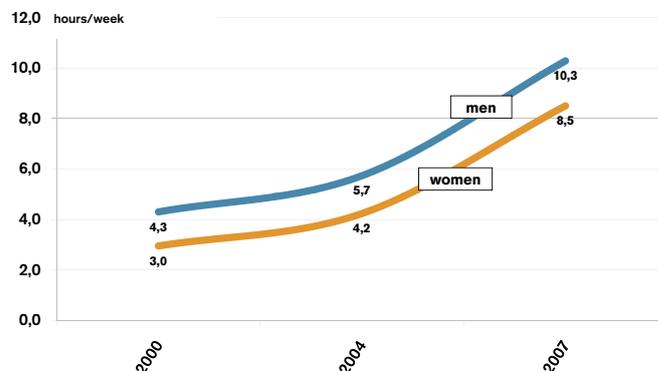


Diagram of the increase in time that men and women spend on the Internet

### WHAT DO MEN AND WOMEN USE THE INTERNET FOR?

When we compare the Internet activity of men and women, we find some clear differences. The increased time that the men use on the Internet seems to be spent on entertainment: downloading music and films, playing games and searching for humor and jokes. But they also consume more time on the net at their hobbies, and informing themselves in different ways about i.e. politics and products. The men are also more active when it comes to trying out new technology, such as IP telephony and mobile Internet.

Activities dominated by men	Activities dominated by women
Using mobile Internet	Using text messaging
IP telephony	Job application
Searching for humor and jokes	Health information
Political information	Information for schoolwork
Hobby websites	Member in social community
Downloading music	Contributing to community- content
Download films	More worried about virus attacks
Gaming	
Listen to radio via Internet	
Gambling	
Product information	
File sharing	
Member of a community	

Table of Internet activities which men or women use most

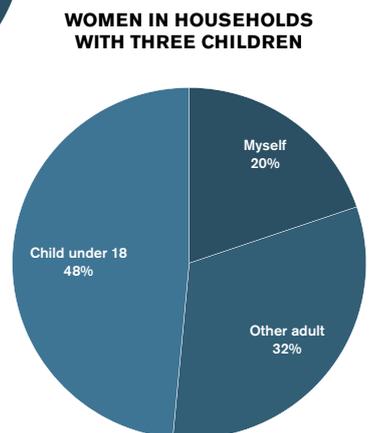
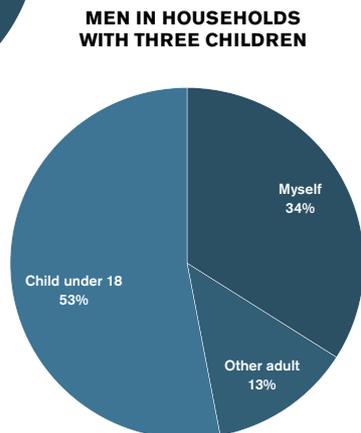
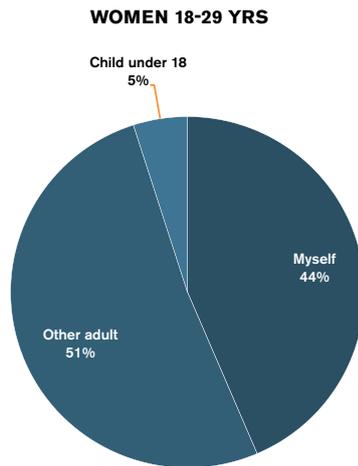
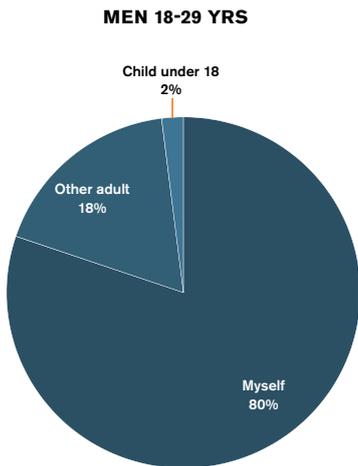
The women have a more serious approach to their Internet usage; they apply for jobs, seek information for their schoolwork and visit websites about health and medicine. They also use text messaging more than the men, participate more often in social communities and contribute more than the men with content to the web communities of which they are members. They are also somewhat more worried about different things, such as computer virus attacks.

These differences between men and women do not imply that women don't seek out humor on the net or that men don't use text messaging. But more men than women look for humor on the Net and more women than men use text messaging often.

### WHO USES THE INTERNET MOST AT HOME?

We also asked the question who used the Internet most at home. Was it the interviewee, some other adult in the household or a child under the age of 18? Consistently, the men dominate Internet use at home. Among youth (18 -29 yrs) 81% of the men state that they themselves are the ones who use the Internet most. 44% of the women state the same of themselves. It's quite the opposite when it comes to the senior citizens, where the women dominate somewhat (68% vs. 57%).

Among families with children, the children take over more the older they get. They dominate Internet use in the home compared to both men and women. The more children in the family, the more they dominate. But most adults accept this, especially when the number of household computers has increased and many (58%) have their own computer. Only one of five would access the Internet more if it were possible. It is mainly young women with children (26% of them) who feel that they would like to use Internet more than they do now.



Number of computers in the household among computer owners

1 computer	56%
2 computers	26%
3 computers	11%
4 computers	5%
5 or more	3%

Where is the computer located?

Study	47%
Livingroom	27%
Bedroom	22%
Children's room	13%
Hall	6%
Kitchen	6%
Other	11%

But even if 58% say that they have their own personal computer, 43% have a laptop and 35% have access to a wireless network, there is still only one computer in most households (56%). This means that many people must share an Internet hook-up. Household finances are relevant here. As we ascertained earlier, there is a clear connection between income and access to the Internet. With lower income, it's less common to have Internet. A similar significant correlation exists between income and the number of computers in the household. With higher income, there are more computers in the household.

Another factor that affects access to the Internet and the number of computers in the household is if there are children in the household. The more children, the likelier that there is an Internet connection. And the more children, the likelier that there are several computers at home.

	Have no children	Have children
Low income	25%	46%
Low-medium income	30%	45%
Medium-high income	33%	58%
High income	52%	76%

Table How large a portion in different income brackets has access to more than one computer at home?

Mobile Internet



8

Today, 93% of the Swedish people have access to a cell phone. This development began twenty years ago, when cell phones were large, heavy and only used as phones. No one could then imagine that such an exclusive item would become common property and develop into such a versatile little instrument. Camera, radio, music player, GPS and the ability to send text and visual messages and to hook up to the Internet. There seems to be no end to the special functions available. The main function is still however the ability to call anyone from almost anywhere. But what about those special functions? How do cell phone users utilize all these possibilities and, first and foremost, do they hook up to the Internet via their cell phones?

Our first question is therefore how much do cell phone owners use all the included functions. We have seen earlier in the section about the Internet as a source of communication that it is mostly younger people who take advantage of all the technical possibilities. The young women were best at sending text messages, so we know here that the young differ from the elderly. All of the young people use the opportunity to “messa”. They also use the built-in camera more often and to some degree MMS, but the difference isn’t that great. When it comes to hooking up to the Internet and e-mailing, the age difference has almost vanished. The great majority don’t do it and in regards to e-mail, very few use their cell phone for it. It seems like the Swedish model for mobile Internet doesn’t really suit the young Internet generation. In Japan, for example, the situation is quite another.

**USE OF CELL PHONE'S SPECIAL FUNCTIONS**

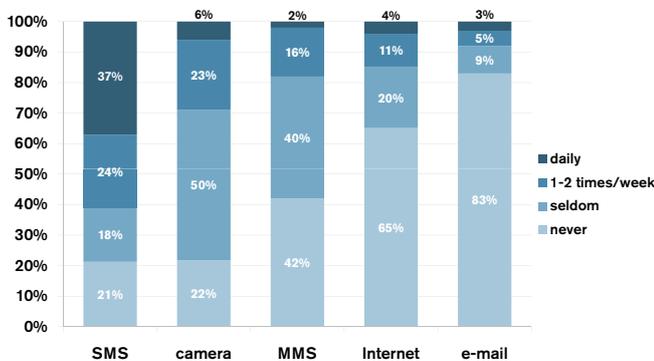
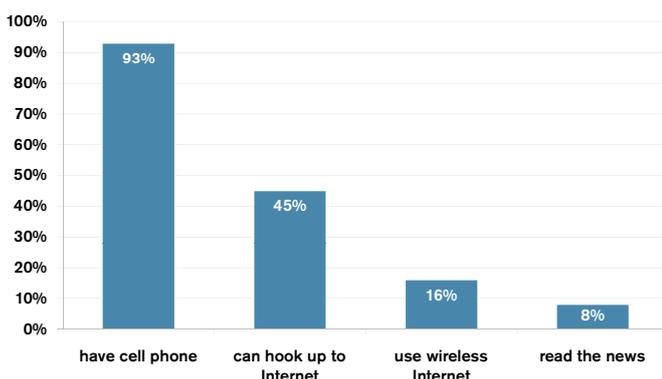


Diagram 1. How often and how many of those who have access use the cell phone's special functions?

**INTERNET HOOK-UP VIA CELL PHONE**



Of those who have a cell phone, about half have one they can hook up to the Internet. As we've seen, not everyone does, and one of three who should be able to, actually does. That's approximately one million people. Half of those use Internet for the most popular activity, which is checking the news, weather, sports results, addresses and schedules. Quite a few young people also utilize music and games. A smaller portion uses them for e-mailing and it's remarkable that there are so few work-oriented Internet activities. Some have cell phones that can be connected to various TV channels. Such activities are still regarded as being in the testing stage.

**WHAT DO PEOPLE DO WITH THE INTERNET ON CELL PHONES?**

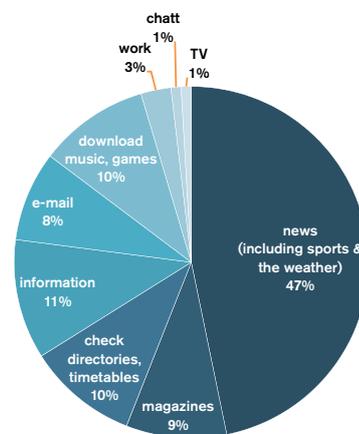


Diagram 3. What do cell phone users do when they hook up?

**READING NEWSPAPERS ON THE CELL PHONE**

Looking more closely at newspapers on mobile Internet, it's interesting to try and estimate the scope it might have. Nine percent of the sixteen percent, who said that they usually hook up to the Internet, said they also read an online newspaper, which is the equivalent of approx. one hundred thousand people. Around fifty thousand of them are daily readers.

**READING ON-LINE NEWSPAPERS ON THE CELL PHONE**

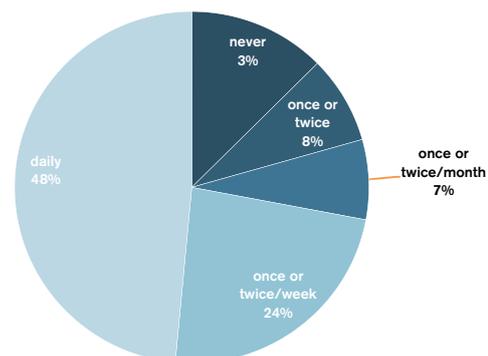


Diagram 4. How often do cell phone users read online newspapers?

**Advanced Enthusiasts, Modernists,  
Traditionalists and the Cautious.  
An Analysis of Use Patterns.**



**9**

In an entirely different fashion than earlier media, the Internet has opened up possibilities for a more interactive use, with users being able to control and contribute. The digital format has made it possible to, almost free of charge, store and spread information over the Net. Users become participants and an increasing portion of the Internet's contents are user-produced. But who is utilizing this potential? And who is file sharing to retrieve and share music and movies? Who's doing banking on the Internet? Does everyone? Is everyone a member of an online community? All these Internet possibilities create a wealth of imaginable variations. Then shouldn't there also be a number of different patterns of use? We already know that the patterns of younger and older users differ in many ways.

In order to analyze this, I've centered on three areas where there can be differences between users: access to the technology, use of the technology and attitude to the technology. You can have access to more or less of the new digital technology. You can use it more or less and you can consider it more or less important and experience it more or less positively.

## METHOD

Access to technology has been divided into 1) more traditional types, such as DVD, digital camera, cell phone, laptop etc and 2) access to more specialized web 2.0 accessories like blogs, communities and homepages. Use of digital technology is divided into four themes: use for communication purposes, use for finding information, use for doing everyday tasks and checking facts, then entertainment use and Internet use for posting information.

Attitudes to the Internet include, partly, common attitudes as to how important and relevant Internet feels and partly more specifics on how important the community world is perceived to be and how one seems to fit into the new information society.

According to the following, nine variables are created, each being composed of several questions. If you for instance have access to all the technology inquired about under "Digital Technology 1", then you receive the highest value in this variable. Regarding questions about use, they build on questions about how much time is devoted to various activities. The more often, the higher the value, which then is summed up for all the included questions.

### Access

#### Digital Technology 1.

Digital camera, DVD, Internet, MP3 player, cell phone, 3G cell phone, camera cell phone, MP3 phone, Internet cell phone, laptop, wireless network, media player, broadband. The more devices one has access to, the higher the value.

#### Digital Technology 2. Web 2.0

One's own home page, own domain, own blog, member in a community

### Use

#### Communication

How often the following activities are carried out: SMS, MMS, chat, MSN (instant messaging), e-mail, attach docs to e-mail. The more often one carries out an activity, the higher the value.

#### Information

How often the following activities are carried out: read the news, read

a magazine, public information, health and medical information, political info, religious information, hobby-related info.

#### Everyday Tasks and Fact-searches

How often the following activities are completed: search for fact, timetables, product information, dictionary, buy tickets, banking, e-commerce.

#### Entertainment

How often the following activities are completed: download music and video, watch movies digitally, radio via Internet, TV via Internet, file sharing, gaming, take part of humor and jokes, gambling.

#### Own participation - Web 2.0

How often the following activities are completed: visit a community, contribute to a community, read a blog, work on one's own blog, post pictures for friends, post pictures for everyone, upload music and video for file sharing, use the Internet for telephoning.

### Attitudes

#### Attitude 1.

The Internet as a source of knowledge and information, the Internet as a source of entertainment, the Internet's significance for the 2006 election, increasing contacts with friends, increasing contacts with people sharing the same interests, satisfied with the Internet for information, satisfied with the Internet for communication, satisfied with the Internet in general. The more important and significant the Internet is judged to be, the higher the rating.

#### Attitude 2. Web 2.0

How important is community? Has the Internet led to increased productivity? Feeling of inclusion in the information society? A more positive answer gives a higher rating.

By performing a cluster analysis of Internet users' answers to the different questions, we can group the users into clusters by how they resemble each other and differ from others. Initially, each individual stands alone, and for each step in the process, more and more individuals who resemble each other are brought together into larger and larger clusters. Towards the end, there are several alternate solutions, depending on how large an amount of clusters one finds most suitable. In this case, the amount of clusters (the patterns of use) was first four and then six.

## RESULTS

Characteristic for the groupings of Internet users that turned up in the cluster process is that there are always two extreme groups, regardless of how many groups that are created: One group, "the advanced enthusiasts", has access to everything and uses Internet's potential fully. The other group, its opposite, "the cautious", who have limited access to the new technology and a very restricted use, where only a few of all the possibilities are utilized. Between these two extremes there are a number of groups whose use patterns differ in various ways. But they are essentially variants of two basic patterns: the traditional and the modern. The traditional use pattern is built around the Internet's informative qualities and the modern one, which is supported by the young Internet generation, rests on the interactive, communicative characteristics of the Internet.

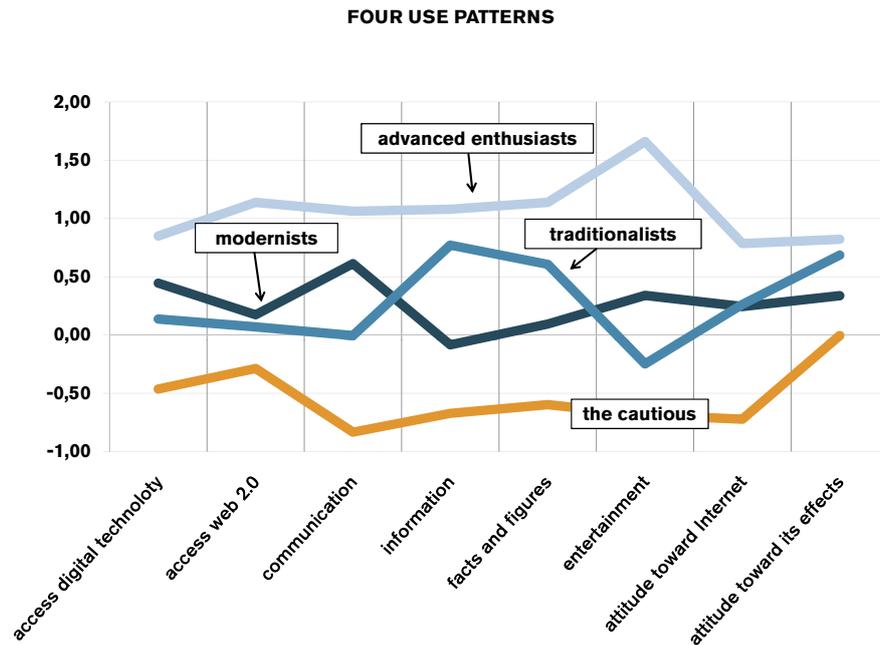


Diagram 1. Internet users divided into four use patterns

## THE ADVANCED ENTHUSIASTS

This group is dominated by young men. They have access to all the new technology and web 2.0 potential. They live constantly with the Internet and cell phone and utilize all of the potential these offer. They network, share files, post info on blogs and communities, download music and videos, simultaneously as they use the Internet for facts and information much more than all the other groups. This group stands for most of the web 2.0 activity. They are very positive toward the Internet and its potential. They shop online. They say they understand politics better and have access to information from authorities. They feel that the Internet is very important and that it's good for them. Their contact with other people has increased.

Size: a core of eight percent of the internet users, with just as many more, if terms of reference are less strict. 450 000 – 700 000.

## ENTHUSIASTIC MODERNISTS

This group consists of mostly young people, both men and women, very interested in the Internet and cell phone. Like the previous group, they are avid users, but choose two main areas: communication and entertainment. SMS, MMS and instant messaging are a large part of everyday life. Music and videos are relevant for them, in every digital form and via every channel. They also use the Internet's potential to get information and check facts. They shop online and feel that their productivity at work has increased. They are very positive to the potential and possibilities of the Internet and feel a part of the information society.

Size: eleven percent of the Internet users. 580 000

## ENTHUSIASTIC TRADITIONALISTS

Those who make up this group are a little older than in the two previous groups. They also have better financial status. Same

amount of men and women. They have access to most of what's available and use what's offered. They are avid user, especially for communication and for getting facts and information. They are not opposed to using the Internet for entertainment and participate on some level in web 2.0 activities. They are very positive towards the potential of the Internet, especially concerning information. Info from authorities is easier to access and politics are easier to understand. They shop online. They feel a part of the information society.

Size: eighteen percent of the internet users. 950 000

## MODERNISTS

This is the group with a majority of women. They are mostly younger and have access to a lot of new digital technology. They don't use web 2.0 activities, and don't participate in other activities either, except for communication in every way. This, however, is what they do a great deal of, and often. They are positive to the communication potential of the Internet.

Size: Nineteen percent of the internet users. 1 000 000

## TRADITIONALISTS

Middle-aged men and women dominate this group. They have access to some of the new technology, but are not interested in web 2.0 activity. They don't spend as much time online as the previous groups and, when they use Internet, they do it to get information, check facts and take care of everyday tasks. They are generally positive to the Internet, but other traditional media are more important. Some of the newcomers to Internet use belong to this group.

Size: Twenty-two percent of the internet users. 1 100 000

## THE CAUTIOUS

This group includes those who spend the least time online. The average age is also the highest. They have access to some of the

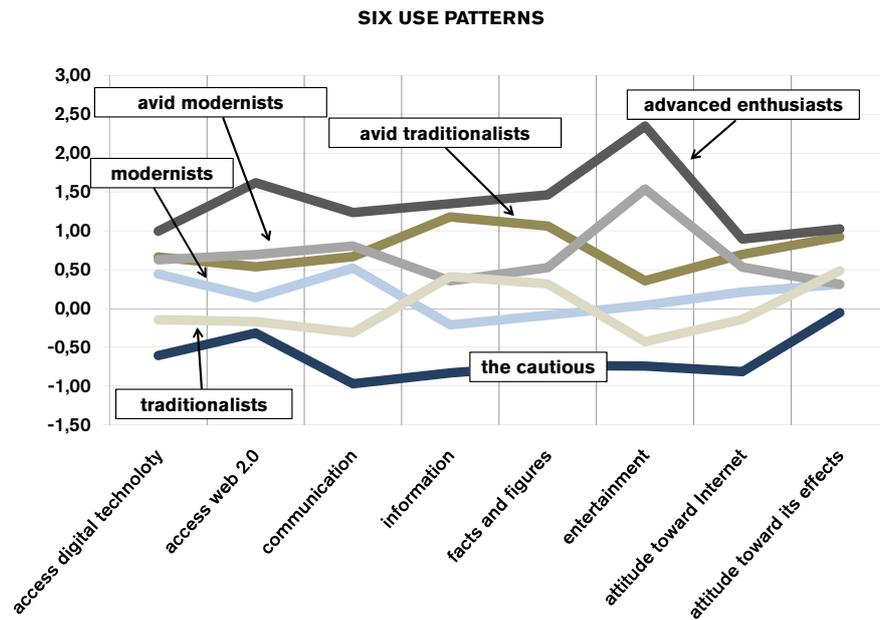


Diagram 2. Internet users divided into six use patterns

new technology, but don't use as much of its functions. If they use the Internet, it's for information, facts and to a certain extent to communicate. They are worried about virus attacks and credit card fraud. The Internet isn't important to them and they don't feel a part of the new information society, but they feel that the Internet has increase their productivity at work. Some of the

newcomers on Internet belong to this group.

Size: Twenty-two percent of the internet users. 1 100 000

Advanced enthusiasts, enthusiastic modernists and regular modernists, enthusiastic traditionalists and regular traditionalists, plus the cautious. Here follows a summary of the characteristics for each group.

	Advanced enthusiasts	Enthusiastic modernists	Modernists	Enthusiastic traditionalists	Traditionalists	The cautious
Average age	28 yrs	29 yrs	34 yrs	38 yrs	46 yrs	51 yrs
Income - Scale of seven	4,7	4,9	5,1	5,7	5,8	5,3
Access to digital technology	Everything	Most of it	A good portion	Most of it	Some	Some
Access to web 2.0	Everything	Some	A little	Some	Very little	No
Use the Internet for communication	A lot	A lot	A lot	A lot	Some	Less
For information	A lot	A good portion	Some	A lot	A good portion	Less
For practical facts	A lot	A good portion	Some	A lot	A good portion	Less
For entertainment	A lot	A lot	Less	Less	A little	Very little
For web 2.0 activities	A lot	Some	Less	Some	A little	Very little
Attitude toward Internet	Very positive	Very positive	Positive	Very Positive	Positive	Not important
Attitude toward the affects of Internet	Very Positive	Positive	Positive	Very Positive	Positive	Not important
Comprehensive characteristics	A lot of everything	Communication and entertainment	Communication and something else	Communication and information	Information and facts	A little of some of it
Percent of Internet users	8%	11%	19%	18%	22%	22%
Estimated amount	420 000	580 000	1 000 000	950 000	1 100 000	1 100 000

# Conclusion



In today's Sweden, the Internet is in a consolidation phase. Three out of four Swedes have access to the Internet and, gradually, more will, even if the rate of increase is slow. We have seen the largest increase in the last years among young people and younger retired people. At the same time, Internet use has spread to younger children, to pre-schoolers. Internet is already well established among children of school age.

In spite of the continued growth of Internet usage, around a third of all Swedes are still excluded from the world of Internet; the Internet isn't a more or less natural part of their daily lives. This is important to take into consideration when most of the planning is geared toward the Internet. Income and education are still correlated to these people who are not included, excepting children. In this sense, the digital divide remains. The most common reason for not wanting to take the expense of buying a computer with an Internet hook-up is simply that one doesn't see the use of it. In any case, no use that would counteract the cost involved. Add to this technical problems and problems with decreased functions, such as diminished eyesight and motor disabilities. The increasing age of a growing number of people adds to this type of problem.

Income and education are also relevant to how Internet is used. It's mainly the well educated, with high incomes, who use the Internet to get information from authorities and who utilize e-signatures.

The time that Internet users spend online has also increased. It has tripled during the last seven years. This has been made possible because more people, soon nine of ten, have been able to hook up via broad band and land lines. This opens up possibilities for a whole new usage of the Net. For example, it's become common to use Internet as a data bank, for help with language usage, to look up facts, a way to keep up with the news and the latest updates. In the early days of the Internet, web pages were not updated as often and the information became dated. Today, web pages change fast and the problem is that one can't find some information anywhere else.

As before, the Internet is an important source of information. Everyone uses it. The main impetus for this involvement is often a special interest or a hobby. This affects the time spent in front of the computer screen. E-mail is nowadays "public property", while on the contrary, the more interactive instant messaging has become the new Internet generation's signum. This includes the use of the Internet as a source of entertainment: music, video and gaming.

Besides online communication and entertainment, the Internet generation is pushing for the development of different web communities and many are posting information themselves, to produce contents that are published on the Internet. But this isn't something that the majority of users are doing. Three percent of the population have a blog, where they can publish their thoughts and tell about their lives. Perhaps it doesn't sound like much, but that means 200,000 Swedes, of which many are hitherto unpublished. Eleven percent are members in a web

community, where the majority also contribute more or less to the contents. Maybe that doesn't sound like much either. But we are talking about around 800,000 people who are out there with others, moving around in the virtual world.

From all the data that has been collected within the project "The Internet in Sweden", we see that some typical patterns of usage emerge. The most dominant pattern is the "advanced enthusiasts" (a half million). Young men, who have access to everything and use the Internet for everything, much more than some other people, dominate that group. They share files, network, and blog. These represent most of the web 2.0 activities. The Internet is very important to them.

Their opposites are "the cautious" (one million). A group double the size. They don't spend much time on the Internet and when they do, it's in order to find facts and information. The Internet isn't important to them and they don't feel like participants in the information society.

Between these two extremes we find the majority of Internet users, like traditionalists or modernists. The modernists (1.5 million) are a little younger than the traditionalists and are mostly interested in communication and entertainment. But they also use the Internet for information and fact-finding. They are positive to the potential of the Internet and regard themselves as participants in the information society.

The traditionalists are the largest group (two million). They don't spend as much time on the Internet as preceding groups and are mostly interested in its traditional role as a source of information, for checking facts and for practical matters. They are generally positive to the Internet but regard other media as more important.

Thus Internet users change with time. The users of Internet in 2007 are not the same as the Internet users of 2000. And as the users change, so does the Internet. Internet 2007 is not the same as the year 2000. Or is it the opposite? Do the users change when the Internet changes?

Method



**World Internet Institute** has been collecting data since the year 2000, about how the Swedish population uses information and communication technology, and how this affects individuals, families and the society. This has been accomplished mainly through “The Internet in Sweden”, a panel study which encompasses 2000 telephone interviews, based on a random sample of the population from 18 years of age and older. The telephone interviews are comprehensive and contain questions about the respondents’ background data, access to the technology, use of traditional media and, foremost, use of the different forms of the Internet.

“The Internet in Sweden” is the Swedish section of the World Internet Project, an international research project, which follows the growth and use of the Internet around the world. The number of participating countries is increasing yearly and this year, 2007, the project has 28 member countries. Each partner in his or her respective country funds its own project. The national samples are representative samples of the population. The questionnaire contains more than 100 questions, common for all the countries, the so-called “Common Questions”. These are identical in each country in order to create comparable results.

Each country has the opportunity to add its own questions to the common questions. The Swedish study has added more than 200 national questions, some being permanent, while others are introduced, in order to be able to follow the development of the Internet.

The World Internet Project was initiated in 1999, by Jeffery Cole at the Center of Communication Policy/UCLA (now Digital Center at Annenbergh School of Communications) in the U.S. In 2000, the first panel studies were done in the U.S., Sweden, Italy and Singapore.

**METHOD**

“The Internet in Sweden” was planned according to a so-called revolving panel design. This means that the basis is a panel of people who are interviewed repeatedly year by year. A few in the panel drop out for various reasons. They don’t want to participate any longer, or they’ve moved, changed names or are for different reasons difficult to reach. Each year, a new sample of people is introduced to fill out the falling off in the panel. They are also a control group, which makes it possible to check for panel effects. The goal is that the total sample of respondents shall be representative for the population at all times.

	Number of interviews	Age sample	Time period for collecting dat	Number of newcomers
2000	2078	18 yrs <	Feb-May '00	2078
2001	-	-	-	-
2002	2049	18 yrs <		1148
2003	2001	18 yrs <	May-June and Aug-Sep '03	655
2004	2002	18 yrs <	Sep – Oct '04	720
2005	961	18 yrs <	Sep-Oct '05	0
2006	-	-	-	-
2007	2017	18 yrs <	Feb-Mar '07	775

Table The study year by year

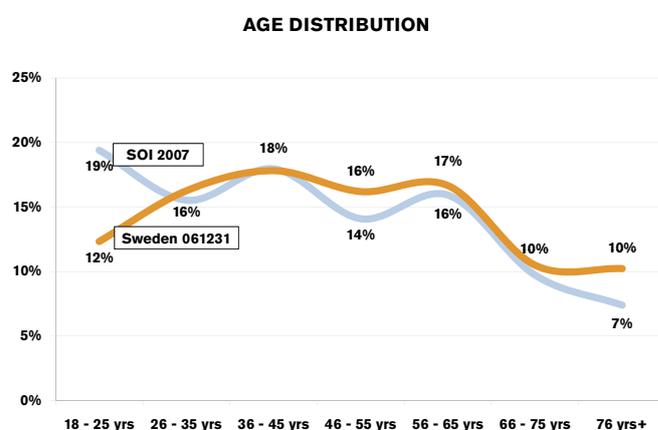
Most other Internet studies are random samplings. The whole population, even the oldest, is interviewed. In many Internet studies there are no people over the age of sixty-five. Both users and non-users participate. The Internet is regarded in a broad context. Both access, use and effects are studied. International comparisons are made possible.

**SAMPLE**

During the first year of the study, in 2000, a random sample of the Swedish population was pulled from a telephone directory. This sample is updated yearly because of dropping off, so that the panel will constantly number 2000. Usually, about 700 new persons are recruited to the panel to compensate for people who no longer want to participate in the study. The new panel members are chosen through a stratified selection, based on age and gender, to secure an even representation of these variables.

**GRATUITY**

The respondents are not offered any direct gratification as thanks for their participation in the study. However, the World Internet Institute has invested in five government lottery bonds in the name of the group of respondents. If they draw a winning lot, it is divided among the respondents. If the winnings per respondent are less than a certain amount, the money is donated to charity.



The diagram shows age distribution for the Swedish population over 18 yrs, according to Statistics Sweden (SCB) Dec. 31, 2006 and for the sample in “The Internet in Sweden 2007”. A slight discrepancy exists, where the study has a certain overrepresentation of respondents in the age group 18- 25 yrs and a certain under representation in the age group over 75 yrs.

Employed/self-employed	60%
Student	10%
At home/ parenting	3%
Unemployed	3%
Sick-listed/disability pension	5%
Retired	19%

Table showing distribution of occupations for the sample SOI 2007.

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# Tables



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Diagram 2. The Growth of the Internet in Sweden compared with the U.S. and Portugal

	Portugal	Sweden	US
1990	0%	1%	3%
1991	0%	2%	5%
1992	0%	3%	6%
1993	0%	3%	8%
1994	0%	5%	10%
1995	1%	12%	15%
1996	2%	17%	25%
1997	4%	28%	37%
1998	8%	37%	42%
1999	13%	44%	47%
2000	18%	53%	54%
2001	22%	56%	57%
2002	25%	61%	62%
2003	26%	65%	66%
2004	29%	68%	67%
2005	32%	71%	70%
2006	36%	74%	70%
2007	38%	76%	70%

Diagram 4. Internet use among young people and senior citizens in Europe 2005

	55-64 yrs	65-74yrs
Sweden	69%	49%
The Netherlands	49%	21%
England	42%	23%
Germany	36%	17%
Austria	27%	9%
Estonia	25%	10%
Ireland	15%	6%
Spain	14%	3%
The Czech Republic	14%	2%
Italy	12%	3%
Poland	10%	2%

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Internet access: Swedes aged 18-35 years

	Level of education - low	Level of education - medium	Level of education - high
Low income	88%	80%	98%
Low-medium income	93%	90%	92%
Medium-high income	100%	99%	100%
High income		98%	100%

Internet access: Swedes aged 36-65 years

	Level of education - low	Level of education - medium	Level of education - high
Low income	63%	73%	57%
Low-medium income	63%	80%	94%
Medium-high income	92%	88%	99%
High income	94%	97%	98%

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Internet access: Swedes aged 65 years +

	Level of education - low	Level of education - medium	Level of education - high
Low income	18%	38%	55%
Low-medium income	35%	43%	65%
Medium-high income	62%	75%	77%
High income			

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Diagram 3. Access to broadband at home among Internet users in different socio-economic groups.

	Level of education - low	Level of education - medium	Level of education - high
Low income	78%	87%	93%
Low-medium income	84%	88%	82%
Medium-high income	79%	83%	89%
High income	78%	89%	89%

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Diagram 1. Proportion of the population who have used the Internet for different activities

	seldome	at least once a week
e-mail	71%	62%
read the news	66%	55%
read a magazine	60%	47%
schedules	66%	37%
hobby	60%	35%
surfing	58%	35%
Internet banking	61%	30%
MSN instant messenger	33%	27%
product information	65%	20%
culture	49%	15%
dictionary	43%	14%
listen to radio	29%	14%
gaming	24%	11%
humor	27%	9%
video	20%	9%
visit community	11%	9%
public information	40%	8%
look for work	25%	8%
blog	22%	8%
file sharing	14%	7%
stock market	22%	5%
politics	27%	5%
TV	16%	5%
ip telephony	10%	4%
buy tickets	55%	2%
gambling	7%	2%
religious	8%	1%

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Access to the Internet at home among men and women

	18 - 25 yrs	26 - 35 yrs	36 - 45 yrs	46 - 55 yrs	56 - 65 yrs	66 - 75 yrs	76 yrs+
Men	95%	87%	91%	88%	78%	59%	36%
Women	90%	84%	90%	89%	75%	48%	10%

## **ABOUT THE WORLD INTERNET INSTITUTE**

The World Internet Institute is a research institute, which does sociological and behavioral research, focusing on the Internet and its effect on people and society. Through its publications, the institute spreads new knowledge to the surrounding society. Recent findings and applications can be put into practice as soon as possible and contribute to the development of trade and the public sector. The institute is, with its open attitude, a meeting ground for education, research, trade and society.

In close collaboration with colleges/universities, cooperating with the public sector and the business community, the Institute initiates, runs and supports sociological and behavioral research, with a focus on the Internet and its effect on people and society.

The Institute shall produce and publish statistics relevant to the latest research.

Through publications, seminars and conferences, the Institute aims for a swift utilization of the latest research results and reliable statistics, and thereby contributes to the development of the economy and the public sector.

This process ensures that the World Internet Institute will be a resource for our society.

The Institute began in the city of Gävle, Sweden in 2000 and today it shares its main office with Fiber Optic Valley in Hudiksvall. WII is an open-membership organization and it's non-profit: any surplus is reinvested into research. Funding is through research grants, public institutions, interested businesses and proceeds generated from our own activities.

## **ABOUT THE WORLD INTERNET PROJECT**

World Internet Institute is the Swedish research partner in the World Internet Project, WIP. This is the first global comparative study, that sheds light on the social, economic, cultural and political changes which the new digital communication technology results in. Today, the study is being conducted by universities and research institutes from 28 countries the world over. The project is open to new members and actively searching for new nations. Its members direct the project through a democratic process, by meeting regularly and interpreting results, developing questionnaires and engaging in dialogue with future project partners.

The World Internet Project started in 1999, at the initiative of the Center for Communication Policy, at UCLA in the U.S. In 2000, the first panel studies were conducted in the U.S., Sweden, Italy and Singapore.

## **“THE INTERNET IN SWEDEN”**

The Swedish study goes by the name “The Internet in Sweden” and is the basis of our enterprise at the World Internet Institute. In “The Internet in Sweden” we’ve been following 2000 households for seven years and creating greater understanding for Internet use and new communication technology. The results of the study are documented in their entirety, but are also broken into areas of focus for further study. These in-depth studies often lead to meetings for discussion between researchers and developers, where, among other things, trends and new business models are on the agenda.

World Internet Institute thanks its members and partners for the support and engagement. Special thanks to .SE – The Internet Infrastructure Foundation for the cooperation on the report "The Internet in Sweden 2007" and to Fiber Optic Valley.

Members and partners:

- Fiber Optic Valley
- .SE – The Internet Infrastructure Foundation
- NITA – Swedish IT-User Centre at Uppsala University
- Gävle Municipality
- IHT – Institute for Humane Technology
- SSNf – Swedish Urban Network Association.
- FPX – Future Position X
- Interactive TV arena
- University of Gävle
- Digital Center at USC Annenberg School of communications

The Internet in Sweden is a yearly report, surveying the internet usage of the Swedish people. The report is published by the World Internet Institute in collaboration with .SE – (The Internet Infrastructure Foundation), and is based on the yearly quantitative study of the same name.

Each year, current phenomena are highlighted, where a need for data has been identified. This year's report includes: "Internet Usage Continues to Grow", "Digital divides", "Broadband for Everyone?", "Access Is Not the Same as Use", "The Internet Is Taking More of Our Time", "The Diversity of Internet Use is Growing -But Also the Individual Differences", "Women and Men", "Wireless Internet", "Advanced enthusiasts, modernists, Traditionalists and the Cautious". "An Analysis of Use Patterns"

Through its collaboration with the World Internet Project, The Internet in Sweden is part of one of the world's largest studies of Internet use. During the spring of 2008, an international comparative analysis of the countries in the World Internet Project will be published.