

# CHAPTER 2: INFORMATION SOCIETY, THE INTERNET AND GENDER. A SUMMARY OF PAN-EUROPEAN STATISTICAL DATA

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## 1. Introduction

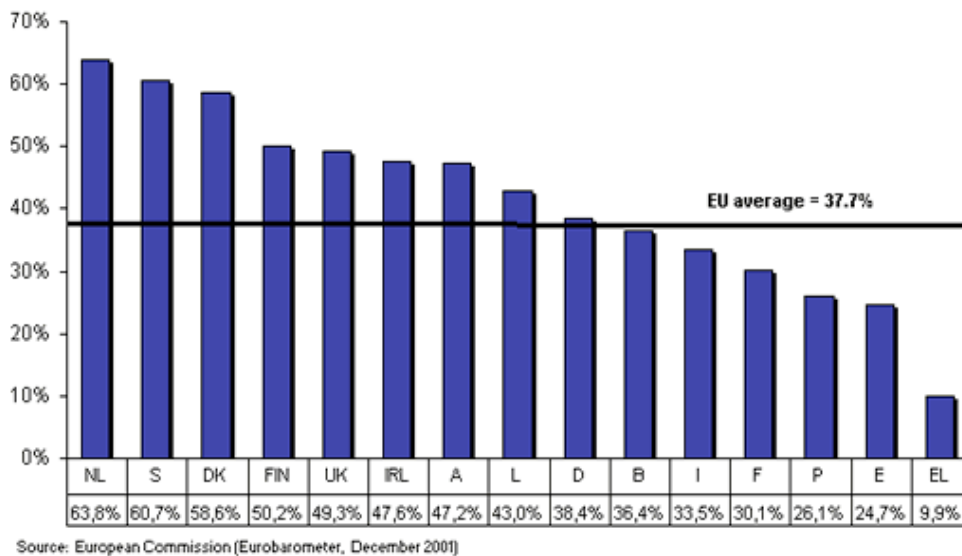
This report summarises pan-European statistics relevant to the IST Strategies for Inclusion: Gender and the Information Society Project (SIGIS): that is looking at gender issues about access, use, employment and skills in different European countries, and covering both use of ICTs and work in ICT industry. It looks first at figures of internet use and access, and differences in usage between men and women, and across Europe. This is followed by some figures on mobile phone use. Figures on IT in the workplace, covering issues of skills, training, access and telework, lead to final indicators of women working *in* ICTs.

There are a number of sources of statistics on aspects of the Information Society that are available on a Europe-wide basis, many of them commissioned by the European Commission. This report summaries some of the most up to date key figures available from this source and commercial sources. However, while Internet access and workplace use of IT are well documented, there are very limited pan-European figures on employment and education in the technical domains seen as relevant to the information society. This contrasts with very well documented national and part-European studies, which are included in national reports (e.g. EURESCOM. Millar and Jagger 2001). Some of the statistics are drawn from figures released by commercial sources (Jupiter MMXI, Netvalue etc). The methodologies and complete statistics are not available to researchers, and we have to trust that these firms act to maintain their quality of data in a competitive market. One advantage is that these surveys are conducted with common methodologies in a wide range of countries. This makes them more reliable than compilations of official national statistics, which may be constructed on different bases, particularly where standard definitions are lacking.

## 2. The Internet - General European Figures

The figures for Internet access and use are varied, measuring various aspects of internet use or connection. Some of the surveys only cover some of the countries in the SIGIS study. Most useful are surveys of the European 15 that the European Commission has commissioned from a variety of commercial companies. These latest figures are part of the eEurope Benchmarking survey, and cover a range of indicators to do with the information society and e-commerce, including private and commercial use of the internet, computers in school and training in the workplace. The survey companies also publish other figures, giving more in-depth information on use of ICTs. However, figures in the public domain are often rather limited. One further problem is that some surveys only look at home access to the internet, others look at work and home access, and others still at any sort of access including new points of access such as WAP phones and digital TV set-top boxes. The quality and frequency of use of the internet is only addressed in some surveys.

The December 2001 figures for Internet penetration *at home* in the EU are shown in Figure 1. The rate of adoption has been running high in all countries, with an average of 38% adoption across the EU by the end of 2001. However there are large differences, the Netherlands and Norway having nearly twice the Internet levels as Italy. However, it must be remembered that Italy's current level is the same as the UK was a mere two and a half years ago.



**Figure 1. Internet penetration (% EU households connected, December 2001)**  
*EC Benchmarking Report 2002*

**Table 1 Access rates (%) to the Internet in the various countries: Changes between June and November, *Gallup/EC, Nov 2001.***

Basis: All EU countries	Reminder October 2000	Reminder June 2001	November 2001
Belgium	29	35	36
Denmark	52	59	59
Germany	27	38	38
Greece	12	12	10
Spain	16	23	25
France	19	26	30
Ireland	36	46	48 <sup>1</sup>
Italy	24	33	34
Luxembourg	36	44	43
Netherlands	55	59	64
Austria	38	46	47
Portugal	18	23	26 <sup>2</sup>
Finland	44	48	50
Sweden	54	64	61
United Kingdom	41	53	49 <sup>3</sup>
European Union – all	28	36	38
Norway	-	62	58 <sup>4</sup>
Iceland	-	68	70

## 2.1 Who uses the Internet

A Survey for the eEurope Benchmarking report gives average EU figures for use of the Internet grouped according to sex, age, education, locality, household and occupation (Table 2). Overall men are greater users than women, but by far the most significant factors in use and adoption of the internet are the divides between those with higher education and those without, and between those who work, especially professionals, and housewives and the retired and over 55s show much lower usage. Those who shared a household (i.e. families) are much more likely to have Internet access than those who live alone (possibly directly linked to age). This implies that policies for the digital divide over access and use of the internet should be primarily concerned with

<sup>1</sup> Amarach consulting put the number of adults on line in August 2002 as 38%, up five percent on August 2001 (Aug 20, 2002)

<sup>2</sup> Anacom suggest this has risen to 48%, Sept 2002

<sup>3</sup> Jupiter MXX suggested this was 60% in mid 2001 (Jupiter MMXI Online Market Landscape Q2 2001), and the National Statistics April 2002 Omnibus Survey puts the figure for adults who used the net in July 2002 at 55% of the population.

<sup>4</sup> Norsk Gallup suggest this has now risen to 70% by Sept 2002

education and low income, but are nonetheless confounded by gender issues that exist in these areas.

**Table 2 Adoption of the Internet in the EU, Gallup/EC, Nov 2001.**

	yes	no	(dk/n.a.)	(Base %) _
TOTAL UE 15	37.7%	61.9%	.3%	(32081)
SEX				
Men	43.3%	56.5%	.2%	(15174)
Women.	32.6%	67.0%	.5%	(16907)
AGE				
15-24	52.7%	47.2%	.0%	(4675)
25-39	47.7%	52.1%	.2%	(9210)
40-54	46.2%	53.7%	.0%	(8040)
55 &+	15.7%	83.5%	.8%	(10098)
EDUCATION				
15 &	17.1%	82.3%	.7%	(8516)
16-20	40.6%	59.2%	.3%	(14370)
21 & +	60.0%	40.0%	.0%	(9195)
LOCALITY TYPE				
Metropolitan	42.4%	57.4%	.3%	(8811)
Urban zone	37.4%	62.3%	.3%	(12326)
Rural zone	32.8%	66.7%	.5%	(10937)
HOUSEHOLD NO.	OTHERS	OVER	15 yrs	
None	24.3%	75.1%	.6%	(6015)
One	37.1%	62.7%	.2%	(12578)
Two	43.3%	56.4%	.3%	(7574)
Three	49.8%	50.0%	.2%	(3806)
Four or more	42.5%	56.8%	.6%	(2103)
OCCUPATION				
Farmer fisherman	37.3%	61.2%	1.5%	(719)
Indep. & Manager	62.2%	37.7%	.1%	(3750)
Empl. middle-manager.	49.9%	50.0%	.1%	(8131)
Manual worker.	33.4%	66.4%	.2%	(4514)
Retired	12.4%	86.9%	.8%	(6626)
Housewife	23.7%	75.7%	.6%	(3472)
Students.	59.2%	40.8%	.0%	(3394)

### 3. Gender and Internet Access

Just as differences in internet access rates between countries is narrowing, so is the distribution of Internet use between men and women, especially for countries with generally high adoption levels e.g. Norway at 44 percent, the UK at 42 percent, Germany at 39 percent and

France at 39 percent, dropping to 31 percent in Italy and 29 percent in Spain (Table 3).

**Table 3. Distribution Men/Women Jan 2002, *NetValue Internet Overview***

Country	Men	Women
France	57.9 %	42.1 %
UK	58.2 %	41.8 %
Germany	59.8 %	40.2 %
Spain	62.4 %	37.6 %
Italy	65.2 %	34.8 %
Denmark	56.7 %	43.3 %
Sweden	58.0 %	42.0 %
Norway	55.5 %	44.5 %

However, this difference is changing dramatically. Even in one month Italy showed an apparent 4 % swing to female users (Table 4). From February 2001 to February 2002, the number of European women online increased by 29 percent. February 2002 figures estimate 25.1 million women using the Internet in France, Germany, Italy, Spain, Sweden, Switzerland and Britain, compared to 40.1 million men.

**Table 4 Distribution of Internet users by gender, Dec 2001, *Netvalue***

Country	Men %	Women%
France	58.4	41.6
UK	57.5	42.5
Germany	62	38
Spain	65.7	34.3
Italy	61.5	38.5
Denmark	57.1	42.9
Sweden	57.3	42.7
Norway	54.8	45.2
USA	52.8	47.2

The following table from Dec 2001 (Table 4) shows that in the US, as elsewhere, men lead women in internet use overall, although Nielsen and other surveys consistently suggested the reverse with *home use*, with women making up 52% of Internet users in the US (Table 5). This higher rate of home use by women if reflected in other countries too.

Men certainly play a pathfinder role in adoption of technology, through particular employment distribution, interests, resources and as a result of marketing, but women quickly follow. By how much and in what way is a different question.

**Table 5 Female Composition of Internet. At-home users, May 2001, Nielsen//NetRatings**

Country	% Female	Country	% Female
United States	52%	Norway	43%
Canada	51%	Singapore	42%
Australia	48%	Brazil	42%
New Zealand	46%	Taiwan	41%
Finland	46%	UK	41%
South Korea	45%	Netherlands	41%
Sweden	45%	Spain	40%
Denmark	45%	France	39%
Ireland	45%	Germany	37%
Hong Kong	44%	Italy	37%

### 3.1 How do people access the internet

Figures are also available about which technologies people use to access the internet. It appears that men have slightly more access to more modern technologies. When we compare this with Dutch data (van Oss, this volume) about the age of computer equipment, this suggests that women have less access to more advanced technology. Reasons for this, which need to be investigated, include place of access, resources, willingness to invest etc. Access to broadband connections is changing very fast as they become more affordable and available, making figures unreliable.

**Table 6 Technology used to access the Internet in EU 15. Gallup/EC 2001**

	Standard telephone	ISDN line	ADSL connection	Cable modem	Mobile / wireless connection	Other	(dk/n.a.)	Sample
TOTAL UE 15	71.8%	16.0 %	6.3%	9.1%	3.5%	.6%	3.4%	(13317)
Men	71.7%	17.2 %	7.9%	8.6%	3.7%	.5%	1.4%	(7153)
Women	71.8%	14.6 %	4.4%	9.8%	3.3%	.8%	5.9%	(6164)

### 3.2 What do people do on-line?

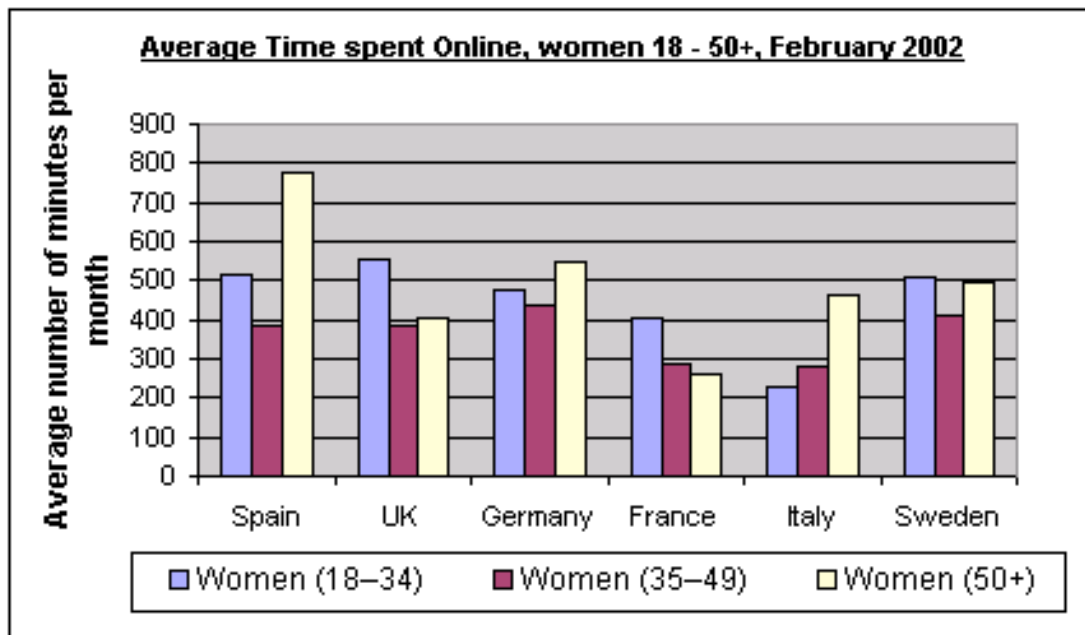
A survey by Jupiter MMXI February 2002 found that men and women use the internet differently, with women on average spending less time on the internet per month (7 hours v. 10hrs/month European average). One explanation given is that women use online time more effectively, but men also seem to do more things on-line: although men and women do similar tasks – shopping, organising travel, banking – men also spend time browsing, reading online and downloading applications etc.

The survey shows that except in France and the UK older women spend most time online (although this is a group is perhaps the lowest adoption rates), followed by younger women. This certainly matches common findings about busier middle-aged people finding less time for use of technology for leisure activities. A survey by AgeConcern in the UK reported that “men aged 55+ mostly use the internet for pursuing hobbies and finding information (78%) while women in this age group use it more as an alternative to the telephone for chatting with friends and family here and abroad (86%)”(Age Concern 21/08/02<sup>5</sup>).

Jupiter MMXI reports that in the UK: “British women spend the most time on grocery shopping site [sainsburystoyou.co.uk](http://sainsburystoyou.co.uk), estate agency [rightmove.co.uk](http://rightmove.co.uk), retail sites [next.co.uk](http://next.co.uk) and [marksandspencer.com](http://marksandspencer.com). Other popular sites include [ivillage.co.uk](http://ivillage.co.uk) and [ivillage.com](http://ivillage.com).

“The average British male Internet users spent the most time in February at downloading applications, computer retail sites [dabs.com](http://dabs.com), [jungle.com](http://jungle.com) and [pcworld.co.uk](http://pcworld.co.uk) and travel sites [airmiles.co.uk](http://airmiles.co.uk), [flybmi.com](http://flybmi.com) and [expedia.com](http://expedia.com). He also spent time on [fhm.com](http://fhm.com) and tabloid site [the-Sun](http://the-Sun)”.

**Table 7 Average Time spent on-line: women 18-50+ Feb 2002, Jupiter MMXI**



Michele Poliziani, author of the report suggests: "To target women, Web sites need to understand what content and information will appeal to a female audience. Clearly sites that allow women to perform a function or provide information to help with their daily lives in some way are popular." The interpretation that Brian Milnes, managing director Pacific, ACNielsen eRatings.com suggests is that "Globally we have

<sup>5</sup> <http://www.ageconcern.org.uk>

found that women are a fussier breed of surfer than their male counterparts. Women are much more efficient in their Web usage -- they spend less time online as they generally know what they're looking for and leave once they achieve their goal". However, the opposite could well be true – women find less of interest or use online.

Figures on this are also available for the SIGIS countries, and show that women spend less time on-line, and log-on on fewer days in Europe (Table 8, Table 9).

**Table 8 Days connected (per month) December 2001, Netvalue**

Country	Men % days	Women %days
France	11	8.9
UK	10	8.4
Germany	11.2	9.2
Spain	11.4	9
Italy	9.2	7.4
Denmark	11.3	8.3
Sweden	11.2	9.6
Norway	9.8	8
USA	11.6	13.5

**Table 9 June 2001 Home Internet Use, SIGIS countries, Nielsen/NetRatings**

June 2001 At-Home Internet use	Average number of Session/month/person	Time online	Current Internet Universe estimate	% Male	% Female
Italy	12	5:59:10	18,102,334	60.91	39.09
Netherlands	15	7:03:39	8,607,500	58.81	40.19
Norway	13	5:10:03	2,452,755	58.13	41.87
UK	13	5:58:53	23,,375,121	57.17	42.83
Ireland	9	4:11:58	1,250,404	54.78	45.22
USA	19	9:44:52	167,138,270	47.28	52.18

Source: Nielsen//NetRatings

### **3.3 Not so seriously...**

A survey of 500 people in the UK from March 2002 by UK marketer eDesigns looked at how people used e-mail in the work place for non-work activities. Although probably highly unreliable, and rather trivial, this emphasises the differences in women's and men's interests and how this is translated into different uses of ICTs.

**Table 10 "misuse of email at work' eDesigns 2002**

"Top ten email 'misuse' by men"		"Top ten email 'misuse' by women"	
Flirting in the office	27%	Planning social life with friends	32%
Gossiping about staff	18%	Contacting siblings	18%
Forwarding pornographic URLs	13%	Gossiping about staff	15%
Contacting non-work friends	16%	Flirting in the office	13%
Organising social life	11%	Forwarding pornographic URLs	7%
Forwarding jokes to colleagues	5%	Seek new employment	6%
Seek new employment	4%	Forwarding jokes to colleagues	4%
Communicating with overseas relations	3%	Transfer work to web based email addresses	3%
Contact parents	2%	Contact overseas relations	1%

### 3.4 US figures

It is useful to compare the European figures with what has happened in the US, where women have been measured as having greater access to the Internet than men. However, despite this, those women online are recorded as using it less than men.

**Table 11 Digital Media Users by Age/Gender, USA, Combined Home and Work. (% of total users), Jupiter Media Metrix**

	May 1999	May 2000	May 2001
Males 18+	45.7%	40.1%	39.8%
Females 18+	39.3%	40.3%	40.9%
Males 18-24	8.1%	8.0%	8.7%
Females 18-24	8.6%	6.6%	6.8%
Males 25-34	12.5%	10.2%	10.1%
Females 25-34	9.4%	10.7%	9.3%
Males 35-54	20.7%	17.3%	15.6%
Females 35-54	19.0%	18.7%	20.1%
Males 55+	4.4%	4.5%	5.3%
Females 55+	2.6%	4.2%	4.7%

**Table 12 Dec. 2001, U.S. At-Home Users, Nielsen/NetRatings**

	Dec. 2000		Dec. 2001	
	Males	Females	Males	Females
Av. Time Spent (hr:min:sec)	9:42:14	7:44:57	11:20:27	9:06:51
Number of Sessions	18	15	21	17
Av. Pages Viewed	667	503	801	573

### 3.5 Why do people adopt computers

The reasons that people adopt computers are dominated by their job and employment prospects. Many studies show that people learn to use computers in order to get a job, because the job requires a computer use. Some example figures are given in a cross-European survey by Eurobarometer, see Table 13.

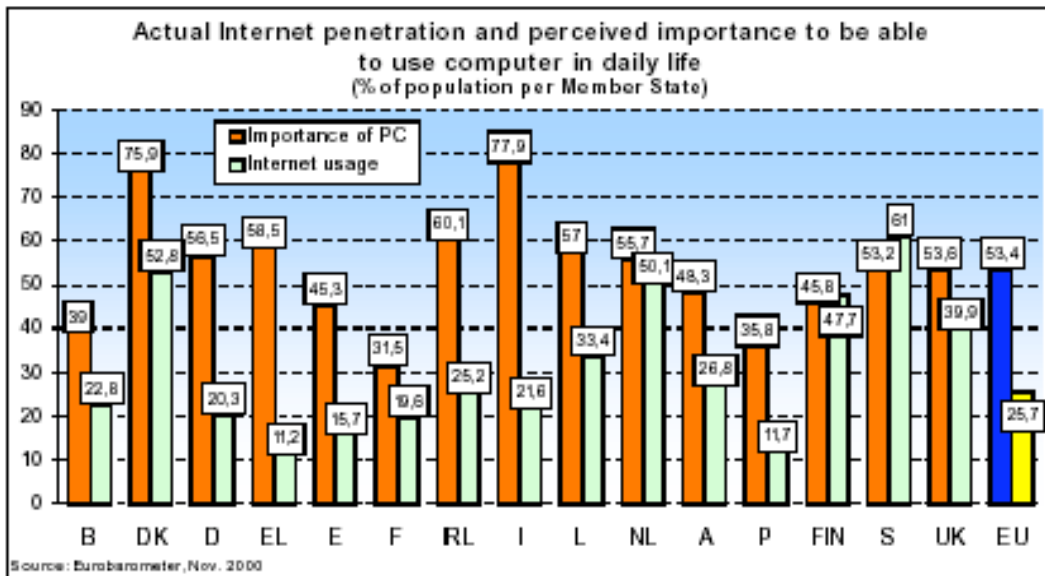
**Table 13 Reasons for Learning to use the computer (% of EU computer users, multiple answers), Eurobarometer Nov 2000.**

Reason for learning to use the computer	% of responses
For job	67.6
To do a job	58.1
To get a job	12.4
To keep a job	12.3
To get promotion on a job	7.7
For information via the internet	24
e-mail (family, friends)	20.8
Search for educational material	19.2

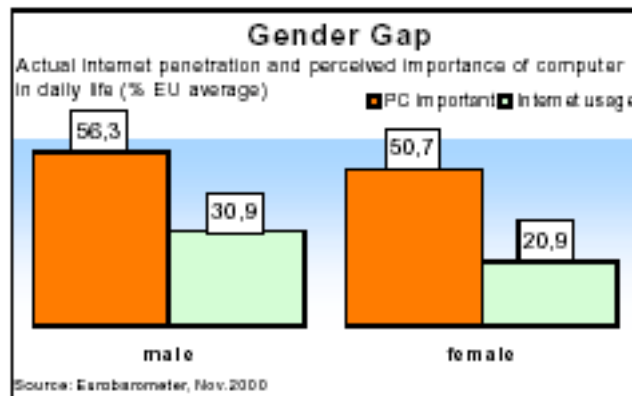
### 3.6 Importance of the Internet

Computer and Internet access is becoming more and more important in people's lives, whether it be for work, study, communication or leisure. In 2000, Eurobarometer collected data on how important people considered access to computers in their everyday lives. This showed that in most countries more people consider computers important in everyday life than actually use them (or at least have internet access). This would seem to indicate that many people perceive some benefit from use, but this is frustrated by lack of appropriate access. However there are interesting differences. The Dutch appear to value computers at the same level as they use (possibly indicating that those who use them value them, and those who do not don't). Many Italians on the other hand value the use of computers, but have not actually adopted them.

This could indicate a market still enthusiastic for this technology, but in some way unsatisfied. Interestingly, while women had similar perceptions as men of computer use being important, there was rather a larger difference in actual use of the Internet by women across the EU, again possibly an indication of restricted access. It could also indicate that people consider that it is important for others to have access, for example their children, but they themselves see no personal benefits, have no resources, or time.



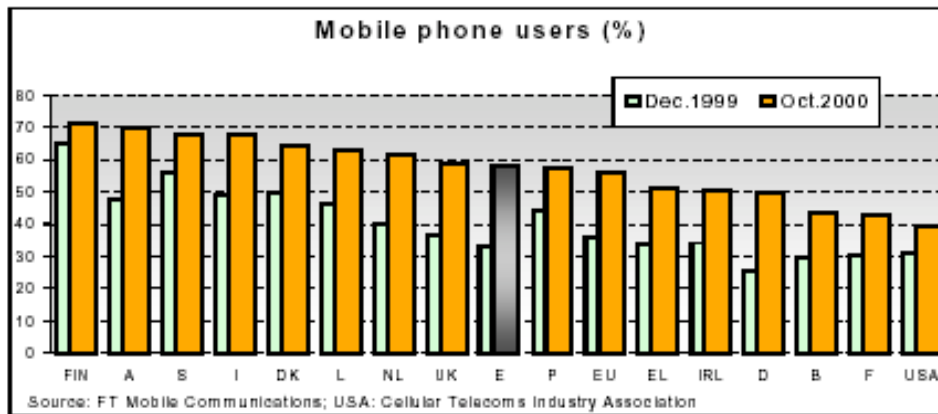
**Figure 2 Actual Internet penetration and perceived importance to be able to use computer in daily life. Eurobarometer Nov 2000**



**Figure 3 Actual Internet penetration and perceived Importance of computer in daily life (% EU average) Eurobarometer Nov 2000**

#### 4. Mobile telephones

It is important to consider the mobile phone, as the other mass market ICT that has had considerably greater user success than the PC, and promises to play an increasingly important role in personal ‘connectivity’ as new generations of wireless system (UMTS and WLAN), mobile devices and applications emerge. Figures on mobile telephone use in Europe show a similar distribution to Internet use, but with different countries being greater adopters.



**Figure 4 Penetration of Mobiles in Europe and US Dec 1999- Oct 2000, *Telecom Industry Association***

More recent surveys covering the SIGIS countries show very high penetration rates over 70% in every country. The growth rates show that from year to year statistics tell a very different story about technology ownership, as the proportion between counties changes dramatically.

**Table 14 Mobile penetration in SIGIS countries, *ITU 2002***

	1995 (k)	2001(k)	CAGR% 1995-01	Per 100 (2001)	% total phone subscribers
Ireland	158.0	2'800.0	61.5	72.94	60.1
Italy	3'923.0	48'698.0	52.2	83.94	64.1
Netherlands	539.0	11'900.0	67.5	73.91	54.3
Norway	981.3	3'737.0	25.0	82.53	53.4
UK	5'735.8	47'026.0	42.0	78.28	57.5
Europe (All)	24'081.3	350'155.4	56.2	43.75	51.9

#### **4.1 Women and Mobiles**

There is some indication of the different ways that men and women use mobile telephones. It is difficult to compare Europe and the US, as the US has lower penetration, and certainly use is still skewed to profession of male business use. A survey by International Communications Research in June 2001 in the US finds men used their mobiles on average 372 min./month compared with 275 for female users. Heavy users are more often male too. Women claimed 78% of use was for family chat compared to 64.5% for men, and men claimed greater business use (33% v.20%). Again, national studies of mobile phone use (e.g. Katz, 2002) show possible cultural features, volume of use, and market division within individual countries.

## 5. Employment and Industry

Computers are extensively used in business in Europe, and use of the internet is now wide-spread. The EC Benchmarking study suggests that 90% of enterprises (with more than 10 employees) have an internet connection, and 60% have web sites. This means that many people will use computers at work, receive training in the use of IT, and have internet access.

### 5.1 Working Women

It is worth reminding ourselves of women's participation in the labour market, as this is the basis to interpreting the access that women will have to the internet, computers and training at work.

Women tend to be much less present in the labour market than men, and there are considerable differences across Europe. Work is one of the primary places where people have access to IT and the Internet, and learn to use it, creating an obvious disadvantage to many women. The work that women do is also different to that of men, both in the types of activity and level of responsibility and pay. Women tend to be much more concentrated in low paid work: in the UK 82% of low paid work is done by women (77% in Italy, 76 in Ireland, ECHP 1997).

**Table 15 Women in employment 1991-2000. Employment rate in % of population aged 15-64. 2001 not available for all (Source: Employment in Europe)**

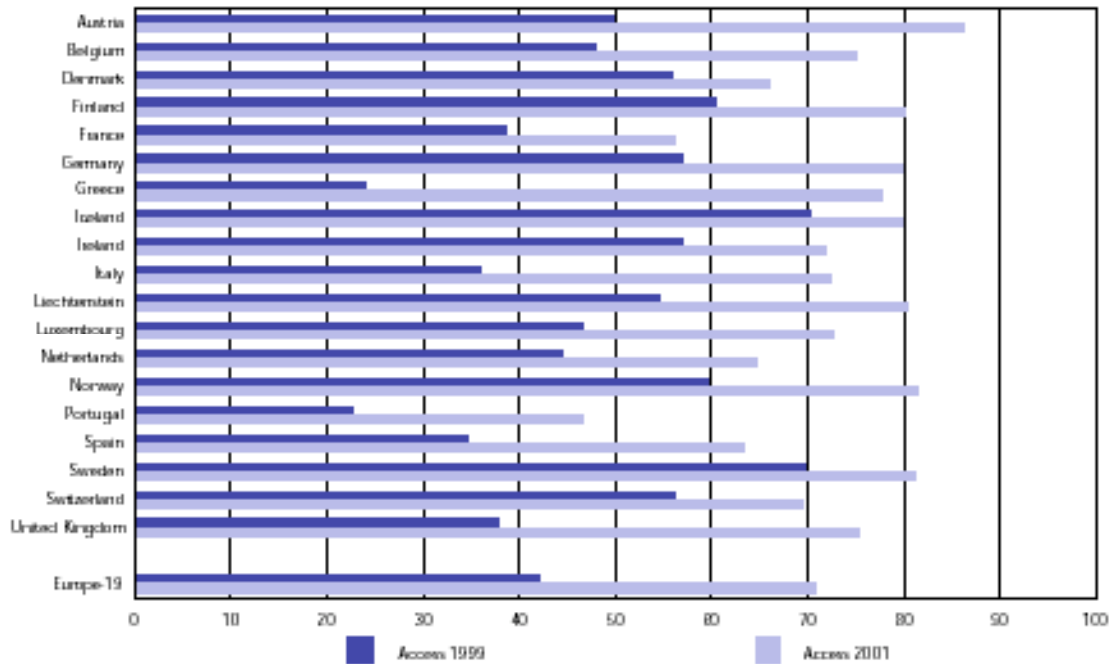
	1991	1996	2000
EU	50.2	50.2	54.0
Denmark	69.9	50.2	71.6
Sweden	77.8	68.7	71.0
UK	61.2	62.7	64.6
Finland	68.4	59.5	64.4
Netherlands	48.9	55.3	63.7
Portugal	56.9	54.7	60.3
Austria	58.2	59.4	-
Belgium	57	55,3	57,9
France	51,4	52,3	55,3
Ireland	35,9	43,2	54
Luxembourg	44	43,8	50,3
Germany	48,7	46,1	46,1
Greece	35,4	38,7	40,9
Spain	31,2	32,3	40,3
Italy	36	39,6	-

## 5.2 Connection to the Internet

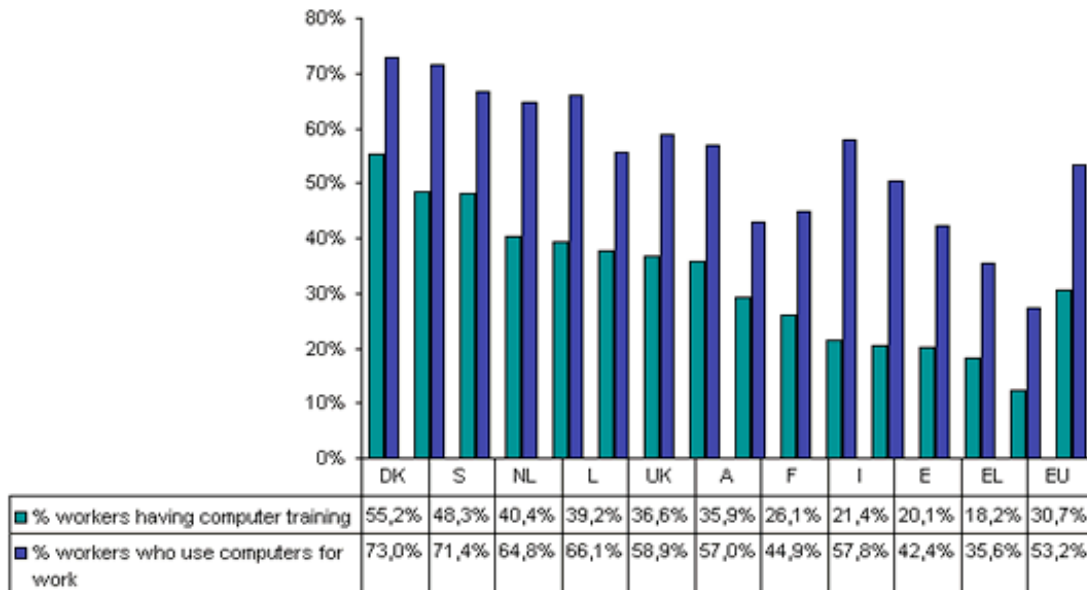
Most larger business are now connected to the internet, and making use of it for many purposes. SMEs have been slower in uptake. NB SMEs represent the employment of large numbers of people. The following table gives a indication of European differences in SME adoption.

Use of the Internet is rising sharply among SMEs, but there are still big differences between EC countries. What these figures do not tell is the penetration of internet access within the firm, and its use by employees in their work and training. While there are figures on women's ownership of SMEs, there are as yet no figures on how these are correlated in the internet access/use.

**Table 16 Figure 5 Access to the Internet 1999 and 2001, by country (percentage of SMEs) 2001 ENSA Survey on SMEs in Koos van Elk, Peter Brouwer (eds) 2001, Observatory of European SMEs**



### 5.3 Computers at Work



Source: European Commission (Eurobarometer, November 2001)

**Figure 5 Workers using computers at work/ training at work. Eurobarometer, Nov 2001**

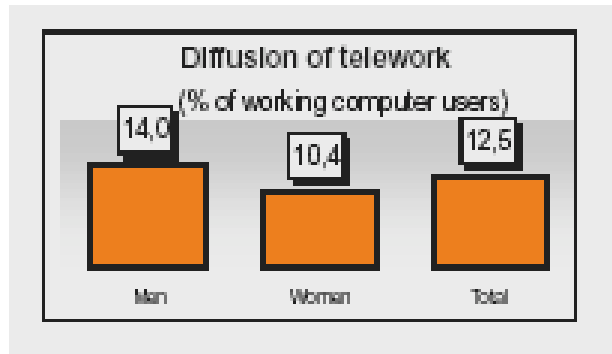
45% of EU workers use computers in their jobs, although the national figures show wide variation. This figure has grown by 20% since 2000. 73% of white-collar workers use computers. However the Commission is worried by the rather lower levels of computer training at work (1/3 of workers), despite the skills shortage at professional level, and the obvious need for IT skills for employability. It remains to be seen what the effects of the economic downturn and slowing of growth and investment in IT will have on employment in IT and training investment.

#### 5.3.1 Use of internet at work

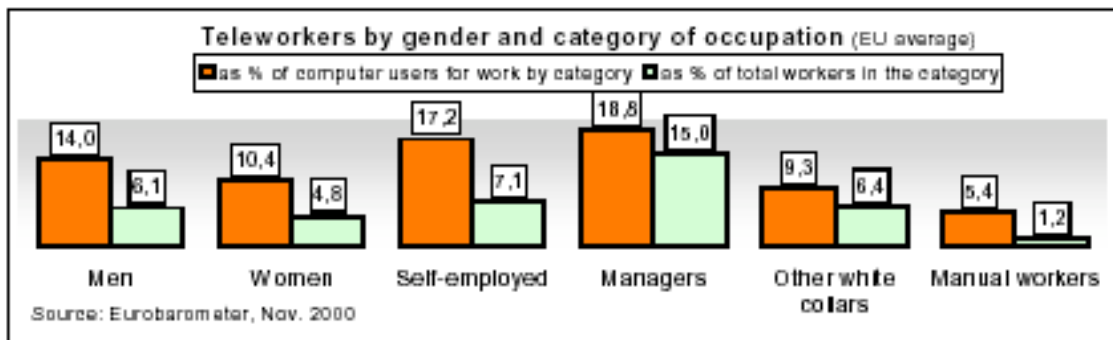
The eEurope Benchmarking study (2001) suggests that 40% of women use the internet at work, compared to 56% of men (35% and 50% October 2000). Younger people and those in cities are more likely to be users.

#### 5.3.2 Telework

With many people using computers at work, The Benchmarking Study also suggests that some of these are now teleworking (using computers for work away from the office). They suggest that more men are teleworking than women, with managers being the highest group (19%).



**Figure 6 Diffusion of teleworking among computer users in the EU Eurobarometer in EC Benchmarking Report 2002**



**Figure 7 Teleworkers by gender and category of occupation EU Average, Eurobarometer Nov 2000**

In the past, teleworking was associated with work from home particularly for women. However the actual development of telework has been rather different, largely aimed at flexibility for the self-employed and managers.

## 6. Women *in* ICT

The previous statistics have covered the use of ICTs, at home and at work, an area where gender differences are not very marked, except in particular areas of employment and management. This difference in employment largely reflects a low number of women *in* ICT – women working in technical fields, creating or maintaining technology<sup>6</sup>. Much of this work calls for a high degree of technical experience obtained in

<sup>6</sup> “ITEC employment refers to occupations that involve the design and production of ITEC goods and services, for example, computer managers, electrical and electronic engineers and technicians, software engineers, and computer analysts and programmers. People in ITEC employment may work in ITEC jobs in the ITEC sector, in other non-ITEC sectors (such as, banking or travel and tourism) or across the whole economy (i.e. all sectors).” Millar and Jagger (2001)

formal training, and here there are considerable differences between men and women's participation in technology courses at all levels<sup>7</sup>.

Unlike usage figures, there is much less pan-European comparative research on employment in ICT industries and, women in particular. One of the problems is that the ICT sector is not well defined – ICT work is very varied, and takes place in industries that are not traditionally high technology industries. This has been emphasised as ICTs have spread to every sector and area of work. For this reason there are few reliable statistics that get to the bottom of ICT work, including women's participation. One source that has managed to investigate this issues is a six country investigation into women's participation in Information and communications technologies careers and courses Millar and Jagger (2001). This report concludes that:

- Women are severely under-represented in ITEC occupations, and their participation in ITEC jobs has been declining.
- Women in ITEC jobs generally appear to have lower status and in the UK and the US women are paid less than men and the pay differential appears to increase with occupation status.<sup>8</sup>

**Table 17 The participation of women in ITEC employment (Millar and Jagger, 2001)**

Country	Employed in all sectors (all occupations % female)	Employed in ITEC sectors (all occupations % female)	ITEC related jobs in ITEC sectors (% female)	ITEC-related jobs (all sectors, % female)	ITEC-related jobs, non-ITEC sectors (% female)
UK	45 (2000)	28 (2000)	9 (2000)	13 (2000)	18 (2000)
Canada	45 (1999)	38 (1996)	-	21 (1996)	-
US	47 (2000)	37 (2000)	21 (2000)	28 (2000)	34 (2000)
Ireland	41 (1999)	35 (1999)	-	19(2000) (est.)	-
Taiwan	43 (1999)	51 (1999)	-	-	-
Spain	36 (1999)	27 (1999)	-	7 (1999)	-

### 6.1.1 Women in Science and Technology Research

One area of work in ICTs is University research, a field in which there has been socio-economic research into women's participation across

<sup>7</sup> Faulkner (2002) in her review of U.K. literature in this volume discusses the increasing formalisation of IT education, but notes that there are still many non-academic routes into IT innovation as the technology spreads to new industries and new uses.

<sup>8</sup> However this does appear to be changing in the US (Brainbench IT wages Survey 2002)

science and technology fields. Here there is clear evidence from across Europe of a significant difference between women and men's employment, with some countries showing a remarkable exclusion of women. Interestingly, two of the SIGS countries, which had had rather slower uptake of ICT, actually have among the largest percentages of women research professionals.

**Table 18 Proportion of female researchers by field of science in 1999 (Higher education sector only). The Women and Science Unit in collaboration with the Statistical Correspondents of the Helsinki Group on Women and Science and Eurostat.**

	Natural sciences	Engineering and technology	Medical sciences	Agricultural sciences	Social sciences and Humanities
EU	23%	12%	33%	28%	32%
Belgium	11%	2%	13%	8%	21%
Denmark	23%	13%	32%	43%	32%
Germany	14%	9%	30%	25%	27%
France	29%	17%	21%	:	38%
Ireland	44%	25%	68%	:	55%
Italy	31%	13%	23%	24%	36%
Netherlands	8%	6%	17%	11%	20%
Austria	18%	9%	32%	31%	33%
Portugal	48%	29%	46%	41%	47%
Finland*	29%	19%	48%	37%	45%
Sweden	29%	18%	39%	41%	36%
United Kingdom	31%	14%	55%	40%	54%

## 6.2 IT Skills Shortage

Among the many reasons to be concerned about this lack of female participation in ICTs is the supply of professionals to the labour market. In recent years there has been a glut of unfilled jobs for those with IT skills, apparently due to lack of supply of skilled workers. This has been expected to continue to rise, with the lack of trained people in this field becoming an important economic problem. An IDC report in 2000 predicted a shortfall of up to 1.7 million employees across Europe by 2003. Despite this shortfall now being in question, with recent economic problems and reductions of IT investment, ICT professionals have become a core part of more industries. It remains to be seen whether industry can tackle the recruitment of women as part of a possible solution to this problem.

## 7. Conclusions

The aggregated figures for Europe mask considerable differences between countries, between the rather more mature markets of Northern Europe and those still rapidly growing markets in Southern Europe. However a simple geographical distinction should not always be made. There are differences between the internet and mobiles: mobile adoption has been fastest, and led to similar adoption figures across Europe.

Comparing Home and Work use, there is a similar pattern of adoption across countries. However, in mobile phone use there is a different pattern, with countries such as Italy with lower Internet adoption having higher Mobile phone adoption.

Women still feature less in adoption and use in European countries, but are catching up, depending on the overall uptake of the Internet in the general population. There is no reason to think that Internet use will not reach similar levels to the US, where for over a year, more women have been measured as using the Internet than men. However usage figures mask different amounts of use, ways of use and content use between men and women. Women on average are spending less time on line, although it is not clear whether this is a feature of the difference in length of time since adoption, or a general feature of how women tend to use the Internet. What these statistics do not show is the differences in quality of equipment available to men and women, a factor pointed out as of importance in the Dutch situation (see chapter 7).

At work, many people use computers, again dominated by northern European countries. Use of computers and the Internet is a feature of white-collar workers, and particularly of senior managers, a group dominated by men. This is also a group that has taken to using the technology to enable a sort of teleworking.

Women *in* ICT is still present a sorry picture, with very low participation in courses and careers in the creation and management of ICTs, and in the fields of education and research.

A reminder needs to be made about the need for caution in interpreting statistics in a context in which access and usage show high growth rates. In particular the effects of differences in the effective date of the survey may have a relatively large consequence for access/use rates. These effects are more dramatic than other factors. Finally we point to the uneven availability of statistics on involvement of different social groups in the production and use of ICT – and in particular the lack of comparable international data series in relation to men's and women's involvement in ICT technical jobs and access to development skills. Very detailed statistics are available in some countries – the Netherlands was exemplary in this respect. Availability of official statistics reflects

(and shape) public policy debates and concerns. Action at the European and international levels may be needed. This topic is discussed in more detail in chapter 7.

## **8. Key EC Reports**

eEurope Benchmarking Report, Feb 2002 Communication from the Commission to the Council, The European Parliament, The Economic And Social Committee and the Committee of the Regions, COM(2002) 62 final, Brussels, 5 February 2002

“INTERNET AND THE PUBLIC AT LARGE” Realised by EOS Gallup Europe upon request of the European Commission (Directorate General «Information Society») Survey organised and managed by Directorate General « Press and Communication » (Opinion Polls, Press Reviews, Europe Direct) November 2001

## **9. Other references**

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ETAN (2002), Science Policies in the European Union: Promoting excellence through mainstreaming gender equality, A report from the ETAN Expert Working Group on Women and Science, European Commission research Directorate General,

Mante-Meijer, E., Haddon, L., Concejero, P., Klamer, L., Heres, J., Ling, R., Thomas, F., Smoreda, Z., & Vrieling, I. (2001). ICT Uses in Everyday Life: Checking it out with the people - ICT markets and users in Europe. EURESCOM P 9 0 3 Project Report, EDIN 0 1 6 1 - 0 9 0 3 . <http://www.eurescom.de/public/projects/P900-series/p903/default.asp> (used with permission). In chapter 5.

Millar, J and N Jagger (2001) *Women in ITEC Courses and Careers*, Report for Women and Equality Unit and Department of Trade and Industry, Department for Education and Skills, Suffolk: DfES Publications