The Digital Divide in Europe

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1. Introduction

Access for all is considered to be a prime condition of Internet politics in the world. This certainly goes for Europe where at least the policy texts of the European Union abound with phrases such as 'an information society for all' and 'E-inclusion'. Yet, practice shows otherwise as even in the latest Eurobarometer statistics persistent large access gaps appear between Northern and Southern or Eastern and Western European countries and between people with different social class, education, age and gender within all these countries.

Apparently, the so-called digital divide in Europe still is a problem considering the unachieved goal of universal access to computers and Internet connections. In this chapter it will be analysed to what extent it really is a problem and, when this proves to be the case how it can be solved by means of European policies, in particular Internet politics. A comprehensive description will be made of the current status of the digital divide in Europe, highlighting the gaps between Northern and Southern, Western and Eastern Europe and the gaps between population groups within these countries. The description will follow a fourfold model of access: motivation, physical access, digital skills and usage.

The second part of the chapter will deal with policy issues. What are the different normative backgrounds to distinguish the digital divide as a problem and to try to solve it? What solutions have been proposed and practiced in the European Union? What are the prospects of solving this presumed problem in an environment of increasing global economic and informational inequality?

But first of all, we have to take a closer look at the core concepts of digital divide, universal access or simply access to computers and the Internet. The digital divide commonly refers to the gap between those who do and those who do not have access to new forms of information technology. Most often these forms are computers and their

networks but other digital equipment such as mobile telephony and digital television are not ruled out by some users of the term.

The term digital divide probably has caused more confusion than clarification. According to Gunkel (2003) it is a deeply ambiguous term in the sharp dichotomy it refers to. Van Dijk (2003, 2005) has warned for a number of pitfalls of this metaphor. First, the metaphor suggests a simple divide between two clearly divided groups with a yawning gap between them. Secondly, it suggests that the gap is very difficult to bridge. A third misunderstanding might be the impression that the divide is about absolute inequalities between those included and those excluded. In reality most inequalities of access to digital technology observed are more of a relative kind (see below). A final wrong connotation might be the suggestion that the divide is a static condition while in fact the gaps observed are continually shifting (also see below). Both Gunkel and van Dijk have emphasized that the term echoes some kind of technological determinism. It is often suggested that the origins of the inequalities referred to lie in the specific problems of getting physical access to digital technology and that achieving such access for all would solve particular problems in the economy and society. In the last suggestion not only a technological bias but also a normative bias is revealed.

The great merit of the sudden rise of the term digital divide at the turn of the century is that it has put the important issue of inequality in the information society on the scholarly and political agenda. Between the years 2000 and 2004 hundreds of scientific and policy conferences and thousands of sessions on regular conferences have been dedicated to this issue under the call of the term digital divide. In the years 2004 and 2005 attention has started to decline. In terms of policy and politics many observers, particularly in the rich and developed countries, reached the conclusion that the problem was almost solved as a rapidly increasing majority of their inhabitants obtained access to computers, the Internet and other digital technologies.

From a scientific point of view the concept ran into difficulties; ever more expressions such as 'redefining the digital divide' and 'beyond access' appeared. However, this does not mean that the concept has become an empty cover. On the contrary, it is more of a container concept carrying too many meanings. Therefore, one should carefully distinguish between different kinds of digital divide, for example in the shape of a number of types of access as will be done in this chapter.

Universal access also has been defined rather differently. We have to observe that the developed and the developing countries try to realize this principle of

(tele)communication policy in different ways. In the developed countries universal access usually means household access for all. For those not connected at home public access and public service in community and government buildings, libraries, telecenters and Internet cafés are the second option. In developing countries household access is a luxury that is far beyond reach. Here public access is the first option; access in public buildings, community centres and commercial telecenters or cafés is the only achievable aim of access in a short or medium term.

However, the biggest conceptual problem is caused by the term access itself. Usually access is equated with physical access. This narrow definition causes many problems. It does not sufficiently explain the diversity of phenomena that are related to inequality concerning the use of digital technology. It is no surprise that all conceptual elaborations of the terms digital divide and technology access of the last five years have tried to extend the concept of access or to go beyond access narrowly defined. My own research is characterized by a model with four successive and accumulative types of access that mark the steps to be taken by individual users in the total process of appropriation of digital technology. The first type is motivation or motivational access. The second is material access, among others physical access. Then comes skills access: a number of 'digital skills' required to work with digital technology. The last type of access is the purpose of the whole process of technology appropriation: usage.

This model of access (Figure X.1) will serve as a framework for the current state of the many digital divides in Europe to be described in the following large section.

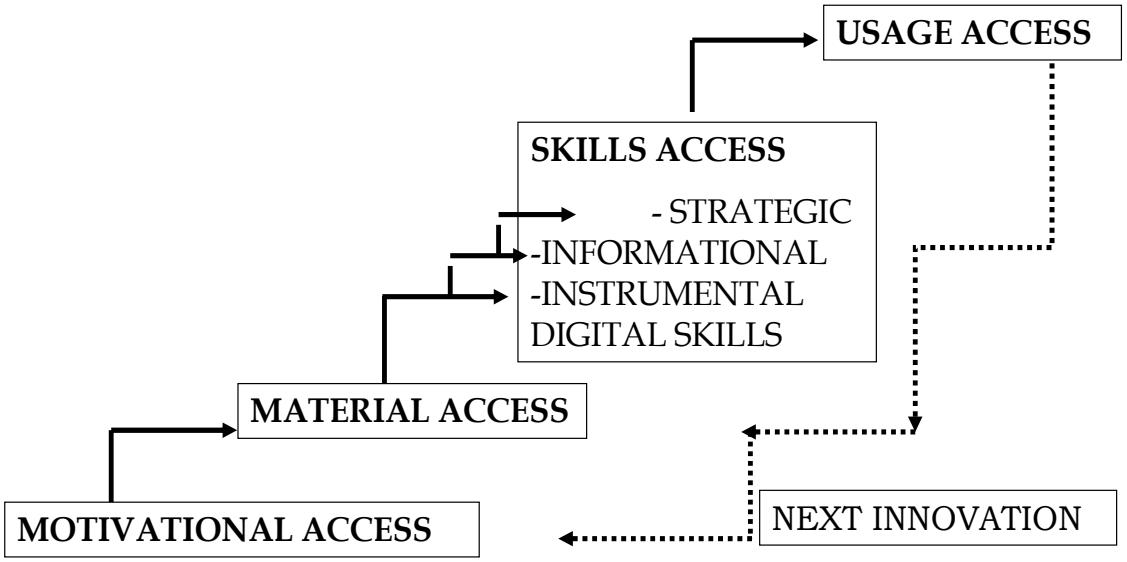

Figure X.1
A cumulative and recursive model of successive kinds of access to digital technologies
Source: van Dijk, 2005. p.22

2. The current state of digital divides in Europe

2.1 Motivation

Acquiring the motivation to use a computer and to achieve an Internet connection is the first step to get access to these digital technologies. Many of those who remain at the 'wrong' side of the digital divide have motivational problems. It appears that there are not only 'have-nots', but also 'want-nots'. Probably, the motivational divide has become smaller in the last two decades, at least in developed societies. In Europe it is increasingly taken for granted that people have a computer and Internet connection to not become marginalized in society. Also, it seems that the phenomena of technophobia and anxiety that usually accompany the advent of a new, perhaps frightening technology have diminished. In the 1980s and early 1990s large parts of the European and American populations showed signs of technophobia, computer anxiety and distrust in a world dominated by computers in nationwide surveys.

However, fears and dislikes have not disappeared. They are surprisingly persistent. According to a representative UCLA survey in 2003 more than 30 percent of new American Internet users reported that they were moderately to highly technophobic and the same applied to 10 percent of experienced Internet users (UCLA, 2003, p. 25). German and Dutch surveys from 1999 to 2006 revealed that about half of those not connected to the Internet explicitly refused to obtain such a connection (ARD-ZDF, 1999, van Dijk, Hanenburg en Pieterson, 2006).

The main reasons for the refusal to use computers and get connected to the Internet in these and other surveys were:

- no need or significant usage opportunities;
- no time or liking;
- rejection of the medium (the Internet and computer games as 'dangerous' media);
- lack of money;
- lack of skills.

The reasons for not wanting a home Internet connection mentioned by European inhabitants in a large-scale European survey of 2005 are summarized in Table X.1.

41%	doesn't want Internet (content is not useful, etc.)
25%	equipment costs are too high
24%	lack of skills
23%	access costs are too high (telephone, etc.)
18%	has access elsewhere
8%	doesn't want Internet (content is harmful, etc.)
6%	privacy or security concerns
1%	physical disability
13%	other reasons

Table X.1 Reasons for not having a household Internet connection in Europe (EU 25 members) in 2005

Source: Eurostat, Community survey on ICT usage in households and by individuals (2005)

The factors explaining motivational access are both of a social or cultural and a mental or psychological nature. A primary social explanation is that "the Internet does not have appeal for low-income and low-educated people" (Katz & Rice, 2002, p. 93). To dig deeper into the reasons for this lack of interest it seems appropriate to complete the large-scale surveys with qualitative studies in local communities and cultural groups. Those who did discovered the importance of culture, ethnicity and particular lifestyles for the motivation to obtain and use digital technology (van Dijk, 2005, p. 35-39).

However, most pronounced are mental and psychological explanations. Here the phenomena of computer anxiety and technophobia come forwards. Computer anxiety is a feeling of discomfort, stress, or fear experienced when confronting computers (Brosnan, 1998, Chua, Chen, & Wong, 1999, Rockwell & Singleton, 2002). Technophobia is fear of technology in general and distrust in its beneficial effects. Computer anxiety and technophobia are major barriers of computer and Internet access, especially among seniors, people with low educational level and a part of the female population. These phenomena do not completely disappear with a rise in computer experience.

2.2 Material and physical access

The following type of access is the one that draws all attention in digital divide research, opinion and policy. Many people think that the problem of the digital divide is solved as soon as (almost) everybody has a computer and Internet connection. Here we can make a distinction between physical access, that is having a computer and Internet connection, whether at home or in a public place – provisions at work are not supposed to be used for every purpose – and material access. This is the broader concept that includes all expenses for computer and network hardware, software and services. While computers and Internet connections on their own are getting cheaper every year total expenses for these media are not dropping according to most consumer expenditure surveys.

The current state of the physical access divide in Europe can be described in terms of the gap between European countries or regions, and the gap of relevant demographics such as age, gender, educational level, type of employment and ethnic minorities. The question posed in this section is whether these gaps are narrowing or widening at the time of writing (2007).

The answers show a mixed picture. In Northern and Western Europe the physical access divide in terms of computers and Internet connections has started to close after the year 2000. This means that the upper strata in terms of education and income were no longer adopting these digital media at a faster rate than the lower strata. On the contrary, people with lower education and income and seniors have been catching up since that time. The physical access divide of gender in Northern and Western Europe already closed before 2000. (See annual Eurobarometer research summarized in GESIS, 2004). However, in Southern and Eastern Europe the physical access divide has still grown after the year 2000. Only recently it can be observed that particular countries in Southern Europe slowly enter the phase of a closing divide (Eurostat, 2005). This goes for France, Spain and Italy were computer possession in 2005 rose above 50% and Internet connections at home became available for more than a third of the population in that year. However, Greece (EL) and Portugal (PT) were still running behind. See Figure X.2.

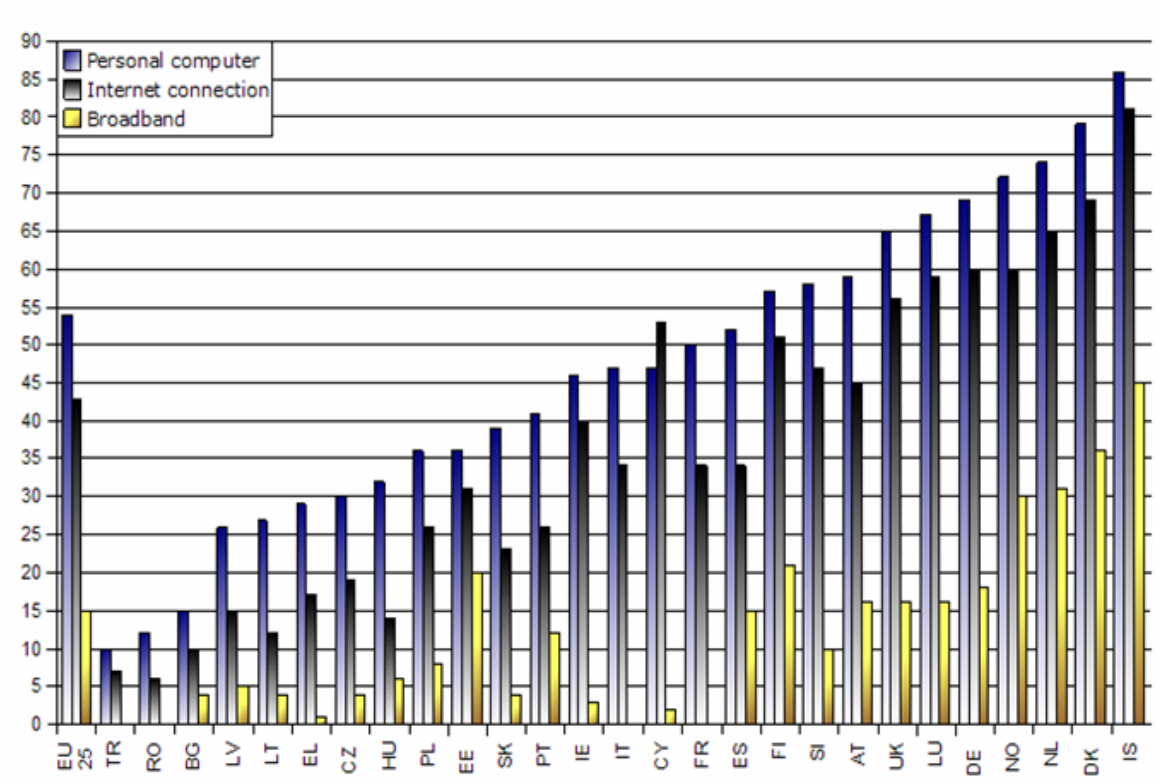

Figure X.2 Household possession of personal computers, the Internet and a broadband connection in 25 EU countries in 2005.
Source: Eurostat, Community survey on ICT usage in households and by individuals

The gap between Northern or Western Europe and Eastern Europe is larger than between Northern and Southern Europe (Eurostat, 2005) . Inside Eastern Europe differences are very large. Countries such as Estonia (ES), Slovakia (SK) and Slovenia (SI) already have access around the EU average, while countries such as Romenia (RO) and Bulgaria (BG) run very far behind with access figures of a Third World country.

What explains these North-South and West-East divides? Generally, they are ascribed to the economic wealth and the level of development of nations (Hargittai, 1999). However, in fact the causes are entrenched deeper in society when the following number of background factors is listed (van Dijk, 2005, p. 57):

- the availability and cost of digital technology in a country,
- its general level of literacy and education,
- the language skills of its population, speaking English in particular,
- the level of democracy (freedom of expression),
- the strength of policies to promote the information society in general and access in particular,

- a culture that is attracted to technology, computers and computer communication.

Cultural factors might be more important than usually thought. One of the factors explaining lower access rates in Southern Europe is a lifestyle of living outdoors and on the streets more than in cold Northern Europe. Here people spend a large part of leisure time at home, among others behind their computer screen.

Besides the disparities at the country level and the regional level –within European countries there are pronounced differences between city and rural regions with rural regions often lacking broadband access (see Eurostat, 2005) - there are access differences at the institutional or company level – that are not discussed here – and at the individual or household level. Individual level disparities in Europe touch the same social categories as in all other continents of the world. This means that those with senior age, lower educational level, positions outside the labor market or educational institutions and to a lesser extent with female sex and ethnic minority origin have less physical and material access to computers and the Internet. As a general proposition one can maintain that these social category digital divides are more pronounced as a country has lower social and economic development and a lower rate of diffusion of information and communication technology (van Dijk, 2005). Taking into account that Europe on average has a relatively high position globally on both rates (development and diffusion) the social category digital divides in Europe still are very articulate. Figure X.3 shows broad divides of age, level of education and occupational position. In 2005 61 percent of Europeans between 55 and 74 years of age had never used a computer and 81 percent did not regularly use the Internet. Among the youngest adult age group (16-24) 9% never used a computer and 32% no Internet. Europeans with low education had a proportion of 57% with no computer use and 71% with no Internet use while these percentages were only 8 respectively 28 percent for Europeans with high education. Finally, Figure X.3 shows large differences of physical access between European students, employees and self-employed on the one side and European unemployed, retired and inactive people at the other.

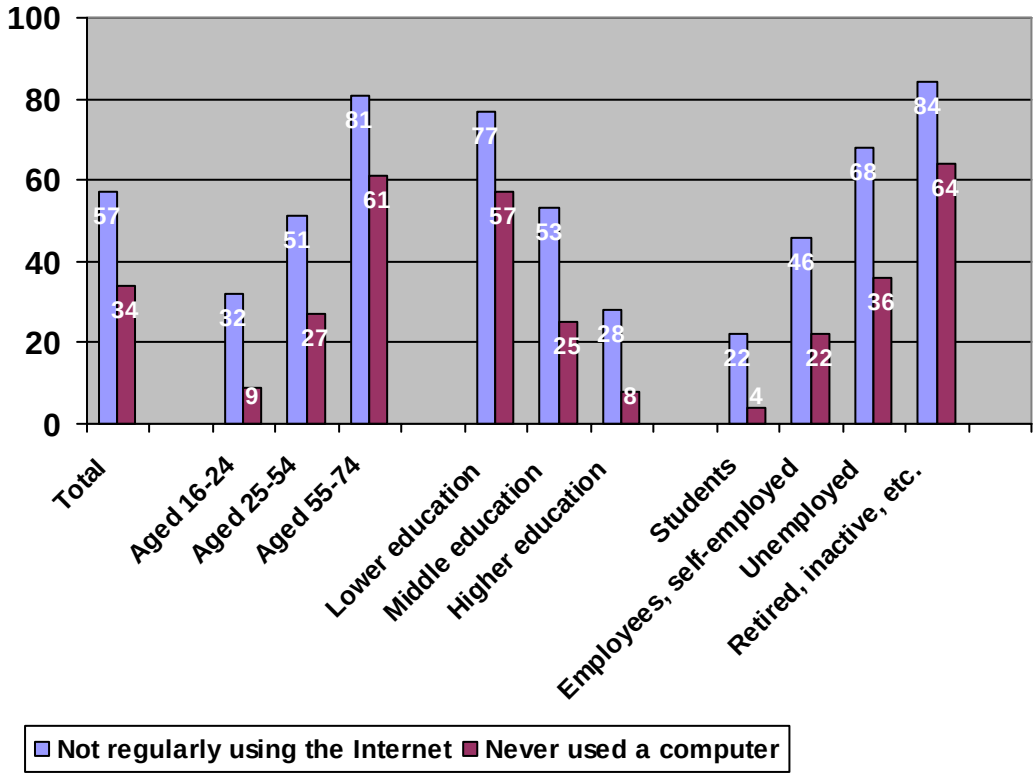

Figure X.3 Non-Users of the Internet in 25 EU countries compared by Age, Educational Level and Social Position in 2005
Source: Eurostat, Community survey on ICT usage in households and by individuals

The gender gap of physical access in Europe has closed for the youngest age group of 16-24, but not for older age groups. Gender differences are biggest in the age group of 55-74. The general physical access figure for the 25 EU counties in 2004 for computer access was 58% for males and 51% for females, and regarding Internet access it was 51% for males and 43% for females.

Physical and material access to computers and the Internet of ethnic minorities, most often migrants from other continents, usually is very much lower than that of the ethnic majority in a particular country. Evident problems are a lack of employment, material resources and understanding of the official language in a country, or the knowledge of English. The ethnic composition of European countries is so different that general ethnic majority and minority access figures cannot reasonably be conveyed here.

2.3 Skills access

After having acquired the motivation to use computers and some kind of physical access to them, one has to learn to manage the hardware and software. Here the problem of a lack of skills might appear according to the model in Figure X.1. This problem is framed with terms such as 'computer, information or multimedia literacy' and 'computer skills' or 'information capital'. Steyaert (2000) and van Dijk (1999, 2003, 2005) introduced the concept of 'digital skills' as a succession of three types of skill. The most basic are *operational skills*, the capacities to work with hardware and software. These skills have acquired much attention in the literature and in public opinion. The most popular view is that skills problems are solved when these skills are mastered. However, many scholars engaged with information processing in an information society have called attention to all kinds of information skills required to successfully use computers and the Internet. *Information skills* are the skills to search, select, and process information in computer and network sources. Two types of information skills can be distinguished: formal information skills (ability to work with the formal characteristics of computers and the Internet, e.g. file and hyperlink structures) and substantial information skills (ability to find, select, process, and evaluate information in specific computer and network sources following specific questions).

Finally, we can distinguish *strategic* skills. They can be defined as the capacities to use computer and network sources as the means for particular goals and for the general goal of improving one's position in society. An example of a strategic skill on the Internet is the task to find the nearest hospital with the shortest waiting list (means) for a particular knee operation (particular goal). Usually, strategic skills both require knowledge of computer and network skills and some substantial knowledge of the field under consideration, for example understanding the way the labor market, the government bureaucracy or hospitals work and knowing particular laws and regulations.

Empirical research of all kinds of digital skills is scarce. Actually, the only data are about the command of operational skills. Institutions offering computer courses sometimes record the achievements of course takers. Some national surveys that ask population samples to report about their computer and Internet skills are available (for example van Dijk et al., 2000, Park, 2002, UCLA, 2001, 2003). Mostly, they only pay attention to the command of hardware and software, not to information skills.

The latest estimation of computer and Internet skills, in this case also mainly operational skills, of the European population were made in the Community Survey on ICT use in

Households and by Individuals (Eurostat, 2006). Table X.2 portrays the overall low computer and Internet (operational) skills of the European population in 2006, emphasizing the even worse situation of the low educated, the senior users and the retired.

Computer User Skills						
Computer user skill level	EU25 average	Low educated	Aged 55-64	Aged 65-74	Retired/ inactive	unemployed
Never used	41	65	61	83	73	44
Low	13	10	13	7	11	14
Medium	24	15	16	7	11	23
High	22	10	10	3	5	19
Internet User Skills						
Internet user skill level	EU25 average	Low educated	Aged 55-64	Aged 65-74	Retired/ inactive	unemployed
Never used	43	67	65	85	76	48
Low	31	17	26	12	17	27
Medium	20	12	8	3	6	19
High	6	4	1	0	1	6
Notes 1. Figures are the percentage of the population in the particular group 2. Low educational level applies to those with no formal education, primary or lower secondary education (corresponding to UNESCO's ISCED classification levels 0, 1 or 2)						

Table X.2 Computer and Internet Skills of Europeans by Age, Education and Social Position in 2006 (EU 25).
Source: Eurostat, Community Survey on ICT use in Households and by Individuals, 2006
http://epp.eurostat.cec.eu.int/portal

Analyzing the data of this survey it appears that all three social demographics – age, educational level and gender – are significantly related to the level of computer and Internet (operational) skills but that age is most important, educational attainment second and gender third.

Measuring computer and Internet skills with general surveys poses two fundamental problems: a measurement problem and the problem that only operational skills and not information and strategic digital skills are considered. The first problem is the validity of survey measurement for this purpose: are self-reports valid measurements of actual skills possessed? Many people have difficulties in judging their own skills. It is well-known that males and young people give higher self-estimations than females and seniors. Moreover, in the surveys referred to, including the Eurostat survey it is asked whether a particular operation has ever been executed, not whether it was performed well. This goes among others for the use of a search engine. Probably most people are very bad in using search engines. However, this can only be validly determined by performance tests in a controlled environment. The only known attempt to do this that

has been reported – a few others are still collecting data – are the experiments of the American sociologist Esther Hargittai. For her dissertation she conducted a series of experimental tests with American user groups charged with tasks of finding particular information on the Internet (Hargittai, 2002, 2003, 2004). In this way, she also measured some formal and substantial information skills. Subjects were selected and matched according to age, sex and education. Enormous differences were found in the measure of accomplishment and time needed to finish these tasks. Only half of the experimental group was able to complete all tasks in the first experiment, but for some subjects time required for a particular task was a few seconds while others needed 7 to 14 minutes (Hargittai, 2002).

A comparable investigation with performance tests of digital skills in a media lab is presently being done by myself and a Ph.D. student at the University of Twente in the summer of 2007. A stratified random sample of 100 Dutch inhabitants, age 18- is invited to perform a series of tests to measure the level of operational skills, (formal and substantial) information skills and strategic skills separately. The sample is stratified in three age groups, three educational attainment groups and two sexes. The general impression of contemporary skills investigations, both surveys and tests is (1) that the divides of skills access are bigger than the divides of physical access and (2) that while physical access gaps are more or less closing in the developed countries, the (relative) skills gaps tend to grow, the gap of information skills and strategic skills in particular.

2.4 Usage access

Actual usage of digital media is the final stage and ultimate goal of the total process of appropriation of technology that is called access in this chapter. Having sufficient motivation, physical access and skills to apply digital media are necessary but not sufficient conditions of actual use. Usage has its own grounds or determinants. As a dependant factor it can be measured in at least four ways:

1. Usage time;
2. Usage applications: number and diversity;
3. Broadband or narrowband use;
4. More or less active or creative use.

2.4.1 Usage time

One of the gravest errors in statistics of computer and Internet diffusion is that the possession of a computer and access to the Internet are conflated with actual use. Some people have a computer but rarely or even never touch it. At least 20% of those having formal access to the Internet at home in Europe and North America are not using this medium themselves, but one or more housemates do. Those really using a computer and the Internet can do this for a few minutes a week or they can use them everyday and all day long. Usage time might be a better indicator of the digital divide than dichotomous physical access (yes/no). Eurostat measures frequency of Internet use in a number of categories (once a day, a week etc.) and for several demographics (see Eurostat: http://epp.eurostat.cec.eu.int/portal). Generally, the same disparities can be observed here as with physical access and skills access mentioned above.

However, the most valid and reliable estimations of actual usage time are made in detailed daily time diary studies that measure all daily activities to the minute. For example, the Dutch Social and Cultural Planning Agency measures detailed home usage times for computers and the internet every five years. Sometimes they lead to surprising results. In 2000 this Agency found that the number of weekly hours of computer and Internet use of males at home was double as compared to females (SCP, 2001). In 2005 the distribution was still the same: males used the computer and Internet at home 5,2 hours and females 2,4 hours a week. The gender physical access gap may have been almost closed in the Netherlands, but this certainly does not apply to the usage gender gap.

2.4.2 Usage applications: number and diversity

Usually, the average *number* of Internet applications used overall, as mentioned in Table X. 3 below, is between two and six (van Dijk, 2007). However, experienced users, people with high education and young users use considerably more applications than inexperienced users, people with low education and senior users. The same goes for people with broadband access as compared to narrowband and dial-up access (van Dijk, *idem*).

Comparable results appear in surveys relating the *diversity* of usage applications to demographic characteristics of users (for the US see Howard et al., 2001, Horrigan & Rainie, 2002a, UCLA Center for Communication Policy, 2003 for Europe see Eurostat, 2006 and Table X.2 below). Evidently, specific social categories of users prefer different

kinds of applications. The studies just referred to all show significant differences among users with different social class, education, age, gender and ethnicity. Table X.3 portrays the differences among the two most important categories: age and education.

AGE	16-24			25-54			55-74		
EDUCATION	LOW	MED-IUM	HIGH	LOW	MED-IUM	HIGH	LOW	MED-IUM	HIGH
INTERNET ACTIVITIES									
E-mail	73	84	92	70	80	90	-	79	86
Information from public authorities	19	29	43	-	37	51	-	32	40
Information on health and food	21	25	29	-	40	44	36	41	40
Information on goods and services	63	74	85	77	83	86	71	76	79
Reading online papers and magazines	26	36	41	24	33	47	-	29	37
Training and Education	37	48	34	-	28	35	-	20	28
Travel and Accomodation	22	42	54	-	51	61	-	55	60
Financial services	13	28	44	-	43	53	-	39	45
Selling goods and services (auctions)	11	16	16	16	19	18	-	-	12
Playing and downloading games and music	61	57	50	28	29	30	-	15	15
Chat and Instant Messaging	65	57	53	28	26	28	-	14	14
Web-radio and Web-TV	32	31	31	17	18	25	-	10	14

TABLE X.3 Percentages of Europeans who have used the Internet in the last 3 months in 2006 for particular Internet Activities by Age and Education (27 EU countries). **Source**: Eurostat 2006 http://epp.eurostat.cec.eu.int/portal

This table shows a generation gap in playing and downloading games and music, in chatting or instant messaging and in receiving Web-radio and Web-TV as the youngest age group uses these applications much more; conversely, Internet users with middle

and high ages benefit more from information on health and food, financial services and travel or accommodation services. However, disparities between people with different levels of education, an important indicator of social class, are much bigger. This also goes for the youngest generation that has grown up with digital media.

In this context some investigators (van Dijk, 1999, 2000, 2003, 2004, Bonfadelli, 2002, Park, 2002, Cho et al, 2003) perceive a so-called *usage gap* between people with different social class and education that is comparable to the phenomenon of the knowledge gap that has been observed from the 1970s onwards. While the knowledge gap is about the differential derivation of *knowledge* from the *mass media*, the usage gap is a broader thesis about a differential use of *computer and Internet* applications as a whole in *activities*. I have observed 'the first signs of a usage gap between people of high social position, income, and education using the advanced computer and Internet applications for information, communication, work, business, or education and people of low social position, income, and education using more simple applications for information, communication, shopping, and entertainment' (Dijk (2005, p. 130).

Bonfadelli (2002) has shown that in Switzerland in the year 2000 72% of Internet users with low education used entertainment types of Internet applications as compared to 35% of users with high education. On the other hand, 64% of users with high education employed information types of application and 45% transaction services as compared to 53% information applications and 31% transaction applications by users with low education. I have observed the same tendency in 2005 in the Netherlands (van Dijk, 2007). Users with high education used significantly more applications of information, news and current affairs, jobs and vacancies, Internet banking, buying and selling goods and the use of government websites than users with low education. On the other hand users with low education used significantly more applications of gaming and downloading or exchanging music and videos, chatting and entertainment as a whole.

The situation of Europe as a whole in 2006 shows the same pattern. Table x.3 reveals that Internet users with low education perform less activities of information retrieval, text communication (both email and reading newspapers and magazines), financial services and services of mobility (travel and accommodation) than users with medium and high education. Simultaneously, they perform more entertainment activities: playing and downloading games and music, chatting and instant messaging and Web broadcasting.

2.4.3. Broadband or narrowband use

Usage of narrowband versus broadband connections appears to have a strong effect on usage time and on the type and range of applications. People with broadband connections take much more advantage of the opportunities of the new media. They are much less deterred by the costs of connection time; they use much more applications and for a longer time. This has been observed in the US (Horrigan and Rainie, 2002b, UCLA, 2003). Unfortunately, Eurostat only supplies data for household broadband access per country in Europe, not individual demographics. However, most likely in Europe a 'broadband elite' also arises that uses the connection for ten or more online activities on a typical day (Horrigan and Rainie). As a matter of fact, broadband also stimulates a much more active and creative use of the Internet (Idem).

2.4.4. More or less active or creative use

Despite its image of being interactive, most Internet usage, apart from emailing, is relatively passive and consuming. Active and creative use of the Internet, that is the offer of Internet content by users themselves still is a minority phenomenon despite all contemporary promises of the Web 2.0 and the rise of participatory media perspective. Active contributions are publishing a personal website, creating a weblog, posting a contribution on an online bulletin board, newsgroup or community and perhaps, in a broad definition, exchanging music and video files. From the Eurostat data it appears that people with lower age and social class or education are exchanging music and video files more often than people with middle and senior age and high social class and education, but that the distribution is opposite for people with high education in creating webpages and posting messages to chatrooms, newsgroups or online discussion forums.

2.5. The Matthew effect of Internet use

A first general conclusion of many investigations is that, increasingly, all familiar social and cultural differences in society are reflected in computer and Internet use (van Dijk, 2005). A second conclusion is that these differences tend to be reinforced by computer and Internet use. In most, if not all spheres of societal participation (economical, social, political, cultural) and citizenship those already occupying the strongest positions tend to benefit more from access and usage of ICTs as potentially powerful tools than those occupying the weakest positions (van Dijk, 2005). This is sometimes called the rich are getting richer effect or the Matthew effect, a term first coined by the sociologist Merton in

1968. Without necessarily defending an instrumentalist view of technology it can be claimed that computers and the Internet can be used as tools to strengthen ones position in society. The better one commands this tool the better it can be used for this purpose.

If this proposition is true, it could lead to a dark perspective for policies to reduce the digital divide of skills and usage access as types of relative inequality. Every measure one could take would benefit those in the strongest positions more than those in the weakest positions. Is this perspective inevitable, or are there other, more focused policy options that only or primarily benefit people in the weakest positions? What digital divide policies are available anyway? What has Europe done to close the digital divide? Are European digital divides policies special, for example as compared to US policies? These questions will be discussed in the last sections of this chapter.

3. Digital Divide Policies in the European Union

3.1 Backgrounds of European digital divide policy

There are two main reasons for countries to develop policies that help to reduce the digital divide. The first is economic development or innovation and the second is social inclusion or the reduction of a level of inequality that tends to become too high. Traditionally, the first reason is more important for governments and corporations, though legitimizing digital divide policies usually is framed more in terms of social inclusion and access for all. Clearly, a persisting digital divide reduces the potential of the labor force and of innovation. Advanced high-tech societies cannot afford themselves to exclude about a third of this potential labor force and of all hidden talents for innovation it contains. Moreover, information and communication technology is considered to be a growth sector in the economy that should be supported in global competition.

With regard to economic development and innovation the digital divide statistics in the former section must be matter of grave concern for the European Union. In its Lisbon 1999 declaration the EU has launched a strategy to become the most innovative economy in the world by the year 2010. In the year 2007 it has to acknowledge that a very large proportion of the European population has never even used a computer and Internet connection (see former section). At the level of countries the EU should be concerned about the enormous disparities of physical access between Northern and Southern, Western and Eastern member states.

In all documents of the EU of the last 15 years that dealt with access to the information society both the issues of economic development or innovation and of social inclusion and participation of all Europeans in the information society were present. Officially, and ideologically the European Union (27 member states from January 2007 onwards) is very much occupied with an all-inclusive information society. Documents with titles like *An Information Society for All* abound since the middle of the 1990s. However, just like the U.S. it has adopted a market orientation in technological innovation and diffusion. This strongly applies to ICTs. Here the prime strategic orientation is the liberalization of telecommunications. The construction of new infrastructures and their general diffusion is left to the market. The E.U. and its member states try to stimulate and direct development with innovation funds and to correct by regulation.

3.2. First policy phase: emphasizing physical access

During the second half of the 1990s and the first years after the year 2000, when the digital divide first appeared as a policy problem for governments, the European Union and its member states were very much preoccupied with the diffusion of the technology and the achievement of physical access to computers and the Internet for as many Europeans as possible. This was enacted by the principles of universal and public access and of universal service. In this context these principles mean that every citizen or inhabitant should either have a private connection to a computer and the Internet, preferably at home, but also students at schools and employees in working places (universal access) or a public connection in a public place such as a library and a community access centre (public access).

The principle of universal *service* was defined by the European Commission (1996) as "access to a defined minimum service of specified quality to all users independent of their geographical location and, in light of specific national conditions, at an affordable price". Here it is accepted that physical access only is not sufficient and that the price, quality and geographical availability of services should be safeguarded and kept under some regulatory control. This is an instance of the broader concept of material access (see above) and it requires a particular distribution of material resources. In the US this takes the form of the Universal Service Fund that reaps a small part of the tariffs of telecom users to afford connections, computers and other resources in (primarily) schools. The EU has not seriously tried to create such a fund. Instead the EU

attempted to realize universal service by regulation (European Commission, 2003). A large number of obligations forced telecom operators to interconnect their networks, to open up their connections for access to the Internet and other digital media by telephone subscribers themselves and to provide some pubic access points.

In the first phase additional steps were made to provide extra resources focused on disadvantaged groups in Europe. They were hardware and connection cost subsidies to schools in poor neighborhoods or regions and additional means in public buildings and community access centers, for example staff to guide starting users and to give computer courses. In some European countries yet another further step was made: to supply hardware, software and training for the unemployed to increase their chances on the labor market.

3.3. Second policy phase: emphasizing skills, usage and motivational access

In the action plan *eEurope 2005: An information society for all* (European Commission, 2002) the emphasis was still on the rollout of (broadband) infrastructure, new services and content. However, here first mention was made of the necessity to re-skill adults for the knowledge society outside formal education for mainly young people. In 2005 a long-term strategy was announced in the context of so-called *i2010* that could be framed as a new digital divide policy: "In 12010 strong emphasis is given to full participation and to providing people with basic digital competence." (European Commission, 2005, p. 9).

This new policy was summarized in the *Riga Declaration* of 2006. The background of the policy shift was explained in a 2007 working document: "It focused on three facets of eInclusion: the access divide (or 'early digital divide') which considers the gap between those with and without access; the usage divide ('primary digital divide')concentrating on those who have access but are non-users; and, the divide stemming from quality of use ('secondary digital divide') focusing on differentials in participation rates of those people who have access and are users." (European Commission Staff, 2007, p. 33-34).

In the Riga Declaration (Ministers of the EU, June 2006): six broad policy areas for inclusion are defined:

1. older workers and elderly people
2. the geographical digital divide
3. eAccessibility and usability
4. digital literacy

5. cultural diversity in relation to inclusion
6. inclusive eGovernment.

In the Riga Declaration very ambitious targets are expressed: "the differences in Internet usage between current average use by the EU population and use by older people, people with disabilities, women, lower education groups, unemployed and 'less-developed' regions should be reduced to a half, from 2005 to 2010.

Here, for the first time, EU digital divide policy is explicitly focussed on the elderly and on the countries and regions with low access to computers and the (broadband) Internet. To close the geographical divide the EU aims for broadband coverage to reach at least 90% of the EU population in 2010.

So-called eAccessibility and usability mean better and more user-friendly software and services to be obtained by voluntary industry commitments and by EU-legislation for particular standards where they are appropriate. According to the Declaration this also means that "attention must be paid to further improve user motivation towards ICT use, as well as trust and confidence through better security and privacy protection. Furthermore, greater gender balance in the information society remains a key objective." (Ministers of the EU, p. 2).

Another new focus is on digital literacy and competence. Here actions will also be tailored to the needs of groups at risk of exclusion: "the unemployed, immigrants, people with low education levels, people with disabilities, and elderly, as well as marginalised young people" (p.4). Here the EU ministers want to cut the gaps of literacy by half in 2010 but, evidently, they do not know where they are talking about as it is admitted that operational definitions of this type of literacy still have to be made.

Cultural diversity in relation to inclusion means "fostering pluralism, cultural identity and linguistic diversity in the digital space" (p. 4). This is supposed to stimulate European cultural diversity and the participation of immigrants and minorities in the information society.

As many eGovernment applications are not yet accessible for EU citizens a last Declaration aim is to "promote the accessibility of all public web sites by 2010, through compliance with the relevant W3C common web accessibility standards and guidelines" (p. 4).

Two things are striking in this new policy direction. First, a shift is made from an emphasis on physical access with a hardware and services orientation to skills and usage access stressing digital literacy and applications that enable people to participate in the

information society. This move echoes more recent analyses of the digital divide as a multifaceted phenomenon or as a problem that goes 'beyond access' A second shift is the transition from a general policy of universal access and service to a much more focused approach for particular social categories and European regions lagging behind.

This double shift is also made in some other countries of the world that previously also emphasized physical access, for example South Korea (Ministry of Information, 2005) . It is conspicuous that it is not made in the United States. After the installation of the Bush Administration in 2001 the digital divide was no longer a government policy problem. The US was heading to be *A Nation Online, How Americans are expanding their use of the Internet* (NTIA, 2002). So, the assumption was that the problem was already being solved. The Bush Administration concluded that government action was no longer needed. It proposed to terminate programs like the CTC (Computer Technology Centers) program and the TOP (Technology Opportunities Program). Of course, this does not mean that there is no government policy in terms of the diffusion of ICTs and the spread of digital literacy, or that American civil organizations will not call attention to digital divide issues. Only, currently there is no concerted government action. Karen Mossberger will analyze the digital divide in the US in Chapter X of this Handbook.

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