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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

European i2010 initiative on e-Inclusion

"To be part of the information society"

Impact Assessment

[COM(2007) 694 final]
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Impact Assessment of the

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL, THE EUROPEAN PARLIAMENT AND THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMITTEE OF THE REGIONS

European i2010 initiative on e-inclusion
"No one left behind in the information society"

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Introductory remarks and definition of key concepts

This is the Impact Assessment (henceforth IA) for the forthcoming proposal for a Communication on the EU e-Inclusion Initiative (henceforth simply the Communication).

All the procedural requirements prescribed by Commission Impact Assessment Guidelines (henceforth simply Guidelines) have been met and are listed in Annex 1.

Background to the Communication and procedural issues

The Communication is the result of a long process involving several intermediate policy steps and documents, activities of ad hoc work groups and broad stakeholder consultation.

This IA takes into considerations the opinions and recommendations of the impact assessment board IAB (see also annex 1).

The Communication will provide a comprehensive approach to e-Inclusion as was requested in the i2010 Communication[1]. Following the roadmap for the activities of DG Information Society and Media, the Communication aims to launch a more coherent set of actions in 2008.

The actions foreseen in the Communication build on the consensus and commitments of the *Riga Ministerial Declaration* on an Inclusive Information Society of 11 June 2006. In many instances the Riga Declaration explicitly invited the Commission to act on these areas.

The preliminary results of the ad-hoc consultation launched for this e-Inclusion Communication provide a very strong consensus and support for the EU to undertake these actions (see Annex 1). Additionally, the ad hoc work of groups and consultation with stakeholders conducted between 2002 and 2007 confirm such support and consensus.

It is worth recalling that the need for review of the e-Accessibility situation was already foreseen in the 2005 e-Accessibility Communication[2] and the Riga Declaration explicitly invited the European Commission to re-assess the status of e-Accessibility in the EU in 2007[3]. The IA considers e-Accessibility along other measures in its core part. In addition, it provides an indepth analysis of this specific topic in Annexes 5 and 6.

Therefore the justification for this Communication is already strongly inscribed in policy antecedents, as well as in consensus and commitments from Member States. Such support entails lower coordination costs and makes the proposed measures highly feasible, in line with the proportionality principle.

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1 "i2010 – A European Information Society for Growth and Employment", COM(2005) 229 final, p. 10.

2 "eAccessibility", COM(2005) 425 final, at page 12 states: A follow-up that focuses on the e-Accessibility situation will be made two years after the publication of this Communication. …the Commission may consider additional measures, including new legislation if deemed necessary. This e-Accessibility work will in turn contribute to the already announced 2008 European Initiative on e-Inclusion.

3 Riga Ministerial Declaration on an Inclusive Information Society, 11 June 2006, Riga, Latvia (http://ec.europa.eu/information_society/events/ict_riga_2006/doc/declaration_riga.pdf).

Scope of the IA

The actions proposed in the Communication are essentially non-regulatory and impose little burden if any on all affected players.

Accordingly, the IA defines the problems, explores possible options for solutions, and provides a qualitative assessment of the impacts of the various options. In doing so, it fully meets the principle of proportionate analysis set out in the Guidelines[4].

In addition to this the IA provides preliminary quantitative estimates of tangible economic impacts that could be achieved if the targets set in the mentioned Riga declaration were met in the next five years. This is done to illustrate that e-Inclusion is not to be seen as a problem only but is equally an opportunity. These estimates do not imply that such economic gains can be achieved simply as a direct result of the Option proposed for the e-Inclusion Communication. Rather, while the proposed Option will provide an important contribution, for this scenario to materialise additional efforts, outside the scope of where the EU can act, will be required from all other involved players (Member States, industry, civil society, etc).

Any legislative measures that may be proposed in the future and follow from the proposal contained in the Communication would be subject to a further impact assessment of the options to be considered.

Contents, and Guidelines analytical steps

- Chapter 1 defines the problem, actors how the problem may evolve, the need for action at EU level.
- Chapter 2 presents the objectives and their consistency with broader EU objectives.
- Chapter 3 defines and briefly discusses the options.
- Chapter 4 combines a qualitative assessment of the impacts and a comparison of the options.
- Chapter 5 discusses monitoring and evaluation mechanisms.
- Chapter 6 summarises the findings in a conclusion.

The annexes present measurements of the state of play of e-Inclusion, reflections based on literature analysis on the nature of e-Inclusion, a general and selective quantification of the potential impacts that could be achieved by the e-Inclusion policy, the state of play in e-Accessibility, and the more detailed of the consideration options for e-Accessibility.

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[4] For a "broad policy-defining document" such is the Communication on e-Inclusion the Guidelines require to assesses the impacts in a preliminary and mostly qualitative way, providing only selective quantitative data (See European Commission, Impact Assessment Guidelines, Brussels SEC(2005) 791 final, June 15 2005, p. 8)

1. WHAT PROBLEM IS THE COMMUNICATION EXPECTED TO ADDRESS?

E-inclusion means both inclusive information and communication technologies (ICT) and the use of ICT to achieve wider inclusion objectives[5]. In other words, e-inclusion refers to the extent to which information and communication technologies help to equalise and promote participation in society at all levels by enhancing social relationships, facilitating economic opportunities for work and entrepreneurship, developing cultural aspects of society, encouraging civic participation.

The e-inclusion problem is therefore both the lack of inclusive ICT, i.e. an information society that has barriers due to the technology itself, as well as the lack of contributing with ICT to advancing economic and social inclusion in general. It is conservatively estimated that currently some 30% to 40% of the population does not fully benefit from the information society[6] (see annex 2 and 4).

However, it is worth stressing that "the e-Inclusion problem", in fact, is an opportunity. To state it better, the problem would become a missed opportunity if not addressed properly by policy makers at EU, national, regional and local level.

We are today at a turning point both in policy making and in academic research on the approach to inclusion in general. Inclusion is increasingly seen as one of the corner stones of economic growth itself, or in other words social inclusion and economic growth are the two sides of the same coin, namely growing and sustainable well being for all society. This is not simply a normative principle or a hope, as an increasing number of economic arguments put forward show that robust growth and inclusion can be complementary objectives[7]. Enlarging the pool of included people is thus no longer considered a way to counter balance the negative consequences of market economy growth and to pay lip service to social cohesion showing the 'charitable face' of policy making[8].

As our everyday and work lives are increasingly entangled in activities and relations enabled by ICT, growth depends from ICT use to a large extent, and will increasingly continue to do so in the future. Therefore, the goal of broad-based growth is dependent also on the number of digitally included and digitally empowered individuals.

The wellbeing of a vibrant European society depends also on human capital, social capital, health, and reduction of the costs of social exclusion and in general on the quality of life. All of these variables add up to determine the level of social cohesion of our societies and ICT

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5 Riga Ministerial Declaration on an Inclusive Information Society, 11 June 2006.

6 Estimate based on data Eurostat, Community Survey on ICT use in Households and by Individuals (aged 16-74) 2006

7 See for just one example G. Sperling, *The Pro-growth Progressive: An Economic Strategy for Shared Prosperity*, New York, Simon & Schuster, 2005.

8 See a recent policy-oriented research project launched in 2006 in the USA by the Brooking Institution (involving politicians and scholars from both sides of political spectrum) and titled 'Hamilton Project' where 'broad-based growth' (probably the best way of expressing the tight link between social inclusion and economic growth) is consider as the key pillar for the future of American society and one of the lines of research in the project (see for instance R. Altman et al, The Hamilton Project: An Economic Strategy to Advance Prosperity, Opportunity and Growth, Washington, The Brooking Institution, 2006.)

can help in most of these areas. As a simple indication of the more socially oriented gain, today the ***costs of social exclusion*** in the EU27 can be estimated between an upper bound of € 764 billion and a lower bound of € 440 billion p.a. Even under the conservative assumption that e-inclusion policy will help reduce this cost by only a few percent this would already amount to tens of billions of euros. This would be the cost of the non-participation of 30% to 40% of the population in the information society.

If all Riga targets were met (see *Box 1* below), reaching the goals of a digitally included society could ***boost economic growth in Europe*** by an estimated **€85 billion** in the next five years. The proposed e-Inclusion Initiative is intended to contribute to the fulfilment of these targets by stepping up efforts at EU and Member States level. This will result into a social and an economic opportunity for people currently at risk of exclusion.The initiative will mainly rely on enhanced synergy of policy instruments and activities already in place. When new actions are proposed for further assessment, such as in the case of exploring potentials of horizontal legislation on e-Accessibility in order to address areas were particular market or coordination failures exist, this impact assessment only anticipates potential benefits and costs in a preliminary manner while due assessment will be performed in the eventuality of regulatory measures being proposed.

There are thus significant potential benefits for economic and society at large. The potential benefits for *individuals* by becoming digitally engaged include:

- Better skills increasing employability or entrepreneurial opportunities;
- Increased productivity and income;
- Better health awareness and access to health services through e-Health, better health;
- Better quality of life;
- Stronger and strengthened social relations through ICT enabled networking;
- Strengthened community cohesion and trust;
- Improved access to entitlements through simplified online forms;
- Ease and convenience to comply with government obligations through online services (taxes, permits, information), saving time, increasing trust in government;
- Better access to information and engagement in public issues (e-Participation).

1.1. What are the issues that may require action?

The Riga Ministerial Declaration, using the 2005 data available at the time, agreed that ”many Europeans still reap few or no benefits from ICT and there are resilient gaps in ICT use”. For instance, it stated that 57% of individuals living in the EU did not regularly use the Internet in 2005; only 10% of persons over 65 used Internet, against 68% of those aged 16-24; only 24% of persons with low education used the Internet, against 73% of those with high education; only 32% of unemployed persons used the Internet against 54% of employed persons. Only about 5% % of public web sites surveyed comply with the minimum web accessibility

standards and guidelines, hindering access to web content and services for people with disabilities who comprise some 15% of the EU population"[9].

The Riga declaration also identified key issues and targets in 6 areas, namely ICT and ageing, geographical digital divides, e-accessibility (i.e. the usability of ICT for people with disabilities), digital literacy and competences, ICT for cultural diversity and inclusive e-government. Relevant extracts are reported in the box below.

Box 1: Riga targets: extracts from the Riga Declaration

Overall Considerations and inspirations

- *Information and communication technologies (ICT) are a powerful driver of growth and employment. A quarter of EU GDP growth and around 50% of productivity growth are due to ICT. ICT services, skills, media and content, and their use in other industry sectors, are a growing part of the economy and society. ICT is thus strongly instrumental to achieving the Lisbon strategy goals.*
- *ICT contributes to improving the quality of everyday life and social participation of Europeans, facilitating access to information, media, content and services, to enhanced and more flexible job opportunities, and to fight against discrimination. Improving ICT access for people with disabilities and elderly is particularly important.*
- *"e-Inclusion" means both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society. eInclusion policy, therefore, aims at reducing gaps in ICT usage and promoting the use of ICT to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion.*

General quantitative target

- *To convincingly address* e-Inclusion, 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**

Area specific quantitative and qualitative policy targets and actions

- **ICT and Ageing**. Reduce to a half the gap in current average internet use between the EU population and older people; remove barriers to internal market of ICT services and products for the elderly; support active ageing at work, especially through greater training for ICT skills; support active participation of elderly in society; support independent living and quality of life
- **Geographical Divides**. Significantly reduce **regional disparities** in internet access across the EU, increase the availability of **broadband (coverage)** in under served locations, and aim for broadband coverage to reach at least 90% of the EU population **by 2010**
- **e-Accessibility.** Fully implement the e-Accessibility provisions in EU legislation, use all instruments available, from voluntary industry commitments to new legal provisions at EU and national level where appropriate, regularly assess the effectiveness of these various instruments
- **Inclusive e-Government.** Promote and ensure **accessibility of all public web sites by 2010**. Designing and delivering key services and public service policies in a user centric and inclusive way, using channels, incentives and intermediaries that maximise benefits and convenience for all so that no one is left behind
- **Digital Literacy**. Reduce **by half by 2010 the digital literacy gap** between the EU population and the unemployed, immigrants, people with low education levels, people with disabilities, and elderly, as well as marginalised young people
- **Cultural Diversity**. Promote cultural diversity in relation to inclusion by: fostering pluralism, cultural diversity and linguistic diversity in the digital space (multilingual, local, cultural heritage, European values content); improving economic and social participation and integration, creativity and entrepreneurship of immigrants and ethnic minorities through their greater

[9] Commitments for adopting "web accessibility guidelines" in public websites were already stated in the Council Resolution on the e-Europe Action Plan 2002: accessibility of public websites and their content (2002/C 86/02)

Progress on the Riga targets

The data available show that in most areas only limited progress has been made toward achieving the Riga targets (see more in Annex 2)[10]. *Below, responses from the public consultation are given. These are quoted here to illustrate tendencies.*

1. General usage disparities

While gender disparities in regular use are decreasing (the percentage of women using regularly the Internet in the EU27 at the end of 2006 was only 7% lower than the aggregate average for the entire population) in other areas disparities are still considerable.

For instance the percentage of regular Internet usage in 2006 (against data for 2005) for the EU27 was:

- 71% (68%) for 16-24 versus only 10% (10%) among those aged 65-74;
- 76% (73%) among Europeans with high formal education versus only 25% (24%) among Europeans with no or low level of formal education
- 58% (54%) among those in employment versus 36% (32%) among the unemployed in EU27 at the end of 2006).
- 51% among individuals living in densely populated areas versus 35% for those living in sparsely populated areas.

Moreover, about 15 million students in EU27 do not use Internet, which is a big disadvantage to leverage the potential of education, and among the 16-24 groups still 18 million do not use Internet. While statistics do not allow a precise quantification, figures on younger Europeans not using the Internet will to a large extent overlap with the pool of marginal youth, from which a large part of the cost to government and society of dealing with social exclusion originates. It is also worth stressing that in the group 24-55 still about 50% do not use the Internet.

2. e-Accessibility and ICT usability[11]

- on average in the EU27 only 5% of public websites comply with the minimum web accessibility standards and guidelines[12]

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10 The choice for mainly referring to data on Internet use depends on their wider availability, reliability and use In Annex II when referring to digital literacy also the use of personal computers (PC) is considered. Internet figures can be used as a proxy for use of other technologies and for the enjoyment of on-line value added services. Internet use is also revealing of the necessary cognitive and digital skills needed to gain real benefits. In this regard, disparities in use reveal potential social and economic differentiation that could result from disparities in use.

11 Data following in the list are preliminary and comes from the ongoing MeAc study (item # 7 of table 12 listing EU financed studies in Annex 1).

12 http://www.w3.org/TR/WAI-WEBCONTENT/

– the percentage of subtitled audio-visual programming varies widely (from 2.5% to 95%)[13]

– the percentage of sign-language programming is a lot less than for subtitling and varies considerably (from less than 0.5% to 5%)

– Broadcasting with audio description ranges from less than 1% to more than 10%

– Considerable fragmentation across product ranges refers to built-in accessibility in PCs and software.

From the public consultation[14]

- There has not been sufficient progress since 2005 in overcoming legal fragmentation (69% of individual respondents), nor market fragmentation (72% of individual respondents). Respondents from the ICT industry also shared some concerns on possible market fragmentation due to emerging regulatory approaches at member state level.
- e-accessibility provisions in EU must be reinforced (83% of individual respondents), notably through standards (80% of individual respondents), by revising current EU legislation and funding programmes (90% of individual respondents), and introducing new EU legislation addressing e-accessibility (74% of individual respondents).
- Industry players, while recognising risks of market fragmentation under current regulatory approaches by member states, voiced a more cautious approach to introducing new legislation, suggested improving standardisation and invited to pursue solutions based on codes of conduct and voluntary requirements.
- Further European efforts are specifically necessary on web accessibility (87% of individual respondents).
- Stronger requirements on e-accessibility will be beneficial to individuals, European industry and overall society (respectively, 85%, 75% and 86% of individual respondents).

3. Broadband

Here progress has been more visible and most recent data show that the broadband coverage target set in Riga has been met: 89% of the EU27 population is covered by broadband at the end of 2006 (92% in EU 15). But when looking at the territorial dimension it appears that geo-divides persist as in rural areas the average coverage stands at only 71%, with lower

13 Depending on Member States and on whether broadcasters are public or commercial

14 For detailed results see section 8.2. The consultation gathered 211 on-line and 28 off-line responses. 65% of these responses were from individuals who voiced more markedly the need for policies aimed at social inclusion in the information society. . The answers provided by industrial representatives and companies were also favourable to most of the proposed actions. However, in the area of e-Accessibility, industry stakeholders despite expressing concerns over market fragmentation at EU level, invited to adopt a more cautious attitude towars proposing new legislation, in anticipation of possible costs that new legislation on e-Accessibility might entail.

download speeds available than in urban areas and less competition between alternative providers. Moreover, there are wide differences at country and regional level: Greece is still lagging behind with only 18% while Benelux countries as well as DK or the UK are close to 100% (see more in Annex 2).

4. Digital literacy and competences

The situation with the diffusion of digital skills is summarised in the table below.

Table 1: Digital literacy in the EU27

Internet User Skills

Internet user skill level	EU total	Low educated	Aged 55-64	Aged 65-74	Retired/ inactive	unemployed	women
Never used	43	67	65	85	76	48	47
Have some degree of internet skills	57	33	35	15	24	52	53
Computer User Skills							
Computer user skill level	EU total	Low educated	Aged 55-64	Aged 65-74	Retired/ inactive	unemployed	women
Never used	41	65	61	83	73	44	44
Have some degree of computer skills	59	35	39	17	27	56	56
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)							
Source: Eurostat, Community Survey on ICT use in Households and by Individuals, 2006							

Only 57% of Europeans have some degree of Internet and computer skills, and the way this is measured refers to really basic and operational competence, that would still be insufficient to gain full benefits from ICT (See Annex 3).

Groups with the lowest computer and Internet skill levels when compared to the EU average are again the less educated, older people and the economically inactive. The unemployed, however, though still slightly below the EU average have better computer and Internet skills levels than the other three groups. However, if unemployment situations are combined with other forms of social exclusion (such as low education levels, specific disadvantage in terms of geographical locations or old age) digital skills become particularly important to ensure a potential for reintegration in labour markets.

From the public consultation

- ICT-related competences should be promoted through formal and in formal education schemes (92% of individual respondents).
- In this area there should be more active partnerships (85% of respondents) and European co-ordination efforts to promote standard qualifications and support initiatives (78% of individual respondents).
- Business players and industry representatives strongly supported the establishment of partnerships to increase digital competences.

5. Use of e-Government services.

Among the population in the age group 15-74 in 2006 in EU27:

– 21% used the service to get information;

– 13.3% downloaded forms;

– 8.8% completed transactions

For the EU25, where data are available also for 2004 and 2005, the growth in this figure is very flat. The low take up of transactional services clearly limits the efficiency savings than can accrue to government.

While non disaggregated data are available by socio-economic parameter, given the usage disparities described earlier, it is fair to assume that the less socially included, being those who most need government services, use e-Government services to a very limited extent.

From the public consultation

- Further guidance and support is needed on increasing ICT competences and resources for public services providers in relation to services for social inclusion (e.g. education, employment, social support) (85% of individual respondents). Business players and industry representative also supported this statement.

6. ICT for cultural diversity

ICT for cultural diversity is still an exploratory field. There is still uneven and limited availability of public websites providing multi-language access. Concerning multi-language information on public sector web sites, evidence shows that, when available, usually on central government portals or those of regional authorities and the largest municipalities, it is almost always still limited to English and is targeted to tourists, foreign investors or researchers. Of course, e-Government portals are also available in other official national languages where they exist[15]. The Czech Republic has a national web site devoted to foreigners living in the country and translated in several languages16. In the UK the Cabinet Office has issued guidelines with regard to designing information resources in different languages for government websites. In the Netherlands many local governments use specially designed 'virtual integration counters' to facilitate access to services by immigrants and ethnic minorities[17], also much appreciated by native users.

From the public consultation

- There is a need for a coordinated approach at European level to increase with the help of ICT the participation opportunities in economy and society of cultural and ethnic minorities and of young people (74% of individual and business respondents).

[15] For instance, for Spain see http://www.060.es/.

[16] http://www.en.domavcr.cz/

[17] For instance, see http://www.GovWorks.nl/amsterdam

7. ICT for ageing

The fact that today only 27% of people over 54 and 10% of those over 65 years old use the internet regularly, compared to 45% for the EU27 on average, means that barriers, technical and economic, but especially those linked to awareness and skills, still prevent the goal of using ICT to support healthy and active ageing processes.

Projections elaborated by the European Commission show ***that at the current pace the Riga target of halving such disparities by 2010 will not be met***.

This mismatch between policy objectives and actual results is the main problem addressed by the Communication. Without the increased efforts the Communication calls for and aims to facilitate, progress is expected to continue but at very moderate pace.

This would entail a risk of new forms of exclusion and, missed economic and social opportunities resulting from digital inclusion for millions of Europeans.

The challenge for Europe is thus to address the information society access and usage divides (e.g. access to ICT, e-accessibility) that continue to exist, the limited capacity to derive benefits from ICT, as well as to address new inequalities in use of ICT that arising as technologies continue to develop.

From the public consultation

- Different national and regional regulations for reimbursement and certification of ICT solutions (assistive technologies as well as solutions for independent living) are a barrier to an EU-wide market for ICT in support of ageing well (56% of individual respondents).
- There is lack of awareness (by older workers and employers) slowing the pace of uptake of age-friendly ICT for the workplace (75% of individual respondents).
- Training courses on digital literacy and competences for older people are not sufficient for them to embrace information society services (72% of individual respondents). Incentive schemes are needed for promoting broadband access by elderly people (69% of individual respondents).
- Participants to the consultation from the ICT industry also recognised in majority the fragmentation of markets for ICT targeting older users and the need to promote standardisation, interoperability and more coordination in this nascent market.

1.2. Who are the actors?

The situation of e-Inclusion results from the interactions between:

– the demand side;

– the supply side and

– the institutional side.

There are numerous interactions in the way the demand side, the supply side and the institutional actors shape access to and use of ICT. The demand side includes both the users and non-users of ICT, who are at risk of exclusion. Business actors in the supply side are important players interacting with the demand side and potentially contributing to either e-Inclusion or e-Exclusion. They are also influenced by the business environment which is affected by regulatory interventions and other policies measures.

1.2.1. The demand side

The **demand side** refers in general to individuals and groups being at risk of digital exclusion due to their status characteristics such as available income and behaviours in terms of motivations, attitudes and personal objectives, their education level, age group, socio-professional and employment status, abilities and disabilities, place of residence, citizenship (citizens, permanent foreign residents, foreign with temporary residence rights, etc) and/or ethnicity. These social conditions influence each other. Together, they shape individuals and groups' access to, use of, and capacity to gain benefits from the information society.

Even when users may have the most sophisticated connection and equipment they might still become "Internet drops out" as a result of frustration with services usability due to the lack of attention to the human/computer interaction and ergonomics dimension of the side of the designers. This is, evidently, even more salient for people suffering from various forms of functional impairments (more or less severe disabilities or simply decreased functional performance due to ageing) and who do not find accessible services and devices.

Potential users may not become actual users because services are not targeted to their needs and interests, a fact that is highly relevant for online public service provision. Others may not find culturally and linguistically suitable content, both because of the way information is searchable online and because of lack of adequate resources to supply such content. Niche cultural content for ethnic minorities is not always adequately catalogued in the portals and popular search engines. In addition, those potentially capable of providing such content do not have the resources do so, while the limited pool of potential users do not represent a sufficient market incentive for mainstream suppliers to cater such users.

In particular, based on the availability of data on Internet use by Socio-Economic Status, the groups mostly affected and the potential target of policies are (data on EU27 in 2006[18]):

- Older workers and the elderly: about 43 million aged 55-64 and 37 million aged 65-74 not using Internet;

[18] Eurostat Information Society Statistics.

- Individuals with no or low levels of education who do not use the Internet: about 74 million;
- Unemployed who do not use the Internet: about 20 million
- Employed people who do not use the Internet: about 89.5 million;
- Young people (15-24) who do not use the Internet: about 18 million.
- In addition there are other groups, for which no statistics are available on Internet usage, but that are clear targets of policies:
- Disabled people in general: an estimated 74 million Europeans (including both severe and less severe disabilities)[19];
- Europeans at risk of poverty: 98 million (of which about 9% of working poor);
- Foreign born residents: about 15 million.

Women, have almost filled the gap with men in Internet usage, but will still have to be considered when defining e-Inclusion policies.

The European population affected by the e-Inclusion challenge (with Internet use as a proxy) is thus estimated at around 200 million. In this figure the overlaps between the groups mentioned before as been eliminated as far as possible. However, it has to be stressed that also others can find themselves on an occasional or temporary basis at risk of exclusion, e.g. when falling ill, being in an emergency situation, when exposed to extreme information overload, or even when being confronted with new technology. Consequently solutions that help the target groups above more than once turn out to benefit a much wider population.

NGOs and other voluntary sector organisations represent the (potential) users' interests. These players can be enabled to become intermediaries helping individuals gaining benefits from ICT and thus can also be the target of policies. In some instances they also play a role as suppliers of support and solutions. A sample is:

- organisations of people with disabilities – which includes both umbrella organisations such as EDF[20] as a great number of interest groups around a specific disability, from large ones such as ONCE[21] or RNID[22] to very small ones. Some large groups of users (e.g. cognitively impaired) are represented by relatively small organisations. The demand side organisation can be characterised as fragmented.

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19 Communications Committee Report, 2004 based on Eurostat data and estimating 15% of total EU population as being disabled. The other often used measure is calculated as a percentage of the working population and is based on Eurostat data dedicated to the topic of employment of the disabled. Such source indicates that in 2002 among persons aged between 16 and 64 years in 25 European countries (EU15 plus the first 10 accession countries at the time), 44.6 million – i.e. one in six (15.7%) – stated that they had a long-standing health problem or disability. Eurostat, Statistics in focus, THEME 3 – 26/2003 (http://ec.europa.eu/employment_social/health_safety/docs/disabled_%202002_en.pdf).

20 www.edf.org .

21 http://www.fundacionONCE.es/WFO/Ingles/default .

22 http://www.rnid.org.uk/ .

- organisations of the homeless or others in social need such as Feantsa[23] and the Social Platform[24],

- organisations of elderly people, at the national level or European level such as AGE[25].

From the public consultation

- ICT users (current or potential) and representative associations should be more involved in designing and implementing e-Inclusion policy measures (76% of individual respondents) and more involved in designing and deploying ICT products and services on the market (69% of individual respondents). The ICT industry also stated that user-centre design is one of the key elements for the delivery of inclusive and accessible ICT tools and services.

1.2.2. The supply side

The players of the **supply side** can be seen as both affecting the problem and being affected by the solution. In as much as their strategies and behaviours decrease or increase access and use barriers, they either create opportunities for further inclusion or increase the risks of exclusion. They are affected by the solution positively if increased e-Inclusion leads to increased demand for ICT product, services and ICT enabled services. The supply side players are also affected when the solution is the result of government regulation and policies either imposing certain requirements on them, or steering them in the right direction.

Market actions continuously transform and re-shape the field and contribute to make e-Inclusion a moving target (either closer or further away). For instance, basic access in terms of the technical equipment available to users (type of connection, hardware and software) becomes insufficient in as much as suppliers of online services design them in such a way that effective use requires faster connections and more up-to-date hardware and software.

Supply side actors are confronted with many different approaches to e-inclusion across Europe. In particular the ICT suppliers are often faced with a lack of common approaches in the internal market as regards e-accessibility, posing serious barriers for a thriving business in inclusive ICT to develop.

The supply side includes:

- the private sector;

- other civil society players providing ICT enabled services and contents;

- public administrations, at all level of government and in all sectors, in their role of provider of ICT enabled public services.

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23 www.feantsa.org .
24 www.socialplatform.org/ .
25 www.age-platform.org/EN/ .

The key players within the supply side include (list only exemplificative):

- Governments at all level in their role of providers of ICT enabled public services
- Telecommunication operators
- Producers of hardware and software
- Producers of other broadly defined ICT related technological devices
- Producers of assistive technology
- Private sector and other civil society providers of ICT enabled services

From the public consultation

- According to individuals (72% of respondents) there has not been sufficient progress since 2005 in overcoming market fragmentation in e-accessibility. Industry players state different messages quoting increasing attention to user-centric design of products and referring to increased standardisation efforts as a means to achieve progress. The ICT business players also invited to strengthen international dialogue on standardisation and reduce possible divergences in requirements at the international level.
- e-inclusion should be further promoted through Corporate Social Responsibility (CSR) and public authorities' commitment in relation to customers and own employees (76% of individual respondents). Business actors also strongly supported the use of CSR in establishing sustainable partnerships for delivering e-Inclusion.

1.2.3. The institutional side

The **institutional side** refers to public authorities firstly in their legislative and regulatory functions, and secondly in their non-regulatory functions at EU and national levels. Within the institutional side, the list of relevant players includes:

- National governments and regulatory and policy making bodies;
- EU institutions;
- Regional and local level governments.

The institutional side has a potential role of shaping both demand and supply, various institutional levels can be affected by e-Inclusion policies coming from the international level (e.g. national governments by a EU directive). Also the institutional actors as a whole can be affected by meta-policies aiming at improving policy making and delivery through more integration and coordination.

From the public consultation

- e-Inclusion considerations be further incorporated into design and implementation of other policies (90% of individual respondents together with a strong business support).
- National and local efforts on e-Inclusion should be further coordinated at European level

(82% of individual respondents), international co-operation on e-Inclusion should be reinforced (78% of individual respondents), and EC research and innovation efforts relating to e-Inclusion should be increased (84% of respondents).

- The European Commission should further support dialogue of e-Inclusion between relevant stakeholders (88% of individual respondents, strong support also from business players).

1.3. Key e-inclusion enablers for a barrier-free information society

The persisting access divide and the new emerging use and benefits divide result from the complex interaction between demand side and supply side factors. Demand side factors include both individual status characteristics (Socio-Economic Status, SES, that is resources) and behavioural, situational and social relational patterns. SES and other demand side factors shape whether individuals have (material access), or decide to (mental access) access ICT.

SES shapes four important influencing enablers of e-Inclusion which, if not realised, constitute barriers to the information society and thus lead to e-Exclusion[26]:

(1) **Affordable technical means of access** (quality of hardware, software, connection, accessibility). Persistence and breadth of use are a direct function of the quality of the technical means of access available to individuals. Slow connections and limited software capabilities constrain the breadth of use, cause frustration and can weaken motivation thus possibly causing stopping ICT use;

(2) **Place of access** (home, work place, public points). This dimension matters as it defines the degree of autonomy of use. Greater autonomy of use impacts positively on persistence and breadth of use and also on quality and effectiveness of use;

(3) **Digital Competences** including basic competences and advanced competences. Basic competences influence the chances of using ICT at least for simple purposes. They can be expected to grow with use. Advanced competences, which are more strongly correlated with individuals cultural and cognitive assets and are harder to achieve without proper education and training, impact individuals' capacity to use ICT for obtaining quality jobs and more effectively participate in the information society;

(4) **Social support**. The degree to which individuals can rely on formal support (training facilities, schools, and social carers) and informal support (from relatives, friends, and colleagues) can help late adopters persist and improve in their use, thus counterbalancing potential skills gaps.

These four enablers determine the likelihood of persistence and increased breadth of use. Persistence and breadth of use in turn influence effectiveness of use.

Several of the key enablers for a barrier-free information society are strongly linked to individual resources, behaviours and attitudes. The most socially disadvantaged groups are thus most at risk of falling further behind. In many cases for such groups to become full users of ICT will be difficult.

Thus, the implication is that e-Inclusion policies ***should both focus on helping the most excluded individuals to use ICT and on the use of ICT to help them.***

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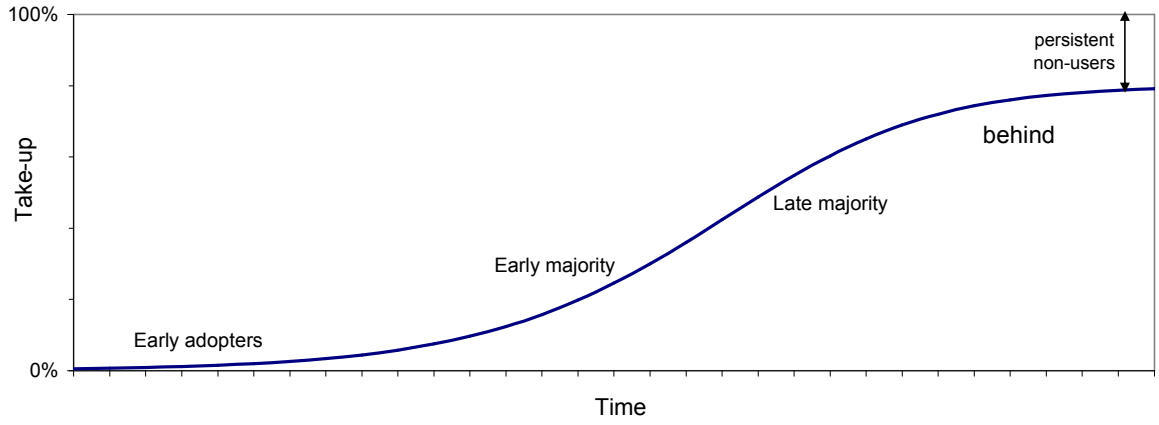
[26] This methodology is often used also to assess digital divides at the local level. A recent example is the Survey on " Socio-cultural changes in the Flemish region and in Brussels", 2007, Research Centre of the Flemish Government

1.4. How would the problem evolve, all things being equal?

Regarding the expectations on the future evolution of e-Inclusion, two opposing views can be identified characterising both the academic and policy debate. They are worth being briefly discussed for they have inevitably contrasting implications in terms of policy. These two views are termed hereafter as the "S-shaped optimistic view" and the "Differentiation Realistic View" (more in depth analysis of these two views is presented in **Annex 3**).

S-shaped optimistic view. The paradigm here is the one assuming that a better functioning of market mechanisms and increased competition would make it possible to reduce the costs and to make ICT products and services accessible by the greatest number of users, as has happened with fixed telephony. The argument is that differences in use of ICT among groups simply reflect their position on a S-shaped curve differentiating from early to late adopters. As users catch up and move on the S-shaped curve, most differences will disappear.

Exhibit 1: Typically S-Shaped diffusion curve



The Differentiation Realistic View. Finding inspiration from the consolidated theories and research on access to, use of and benefits deriving from education, cultural and information goods and media, this view maintains that as access to ICT increases, new forms of social differentiation and inequalities emerge. This is so because more advantaged groups are in a better position to use ICT effectively and thus derive benefits leading to desirable social outcomes such as increase in human capital, social capital, participation.

Accordingly less advantaged groups, even when they use ICT, may further fall behind in relative terms. This view is based also on a detailed and in depth explanation of why ICT must be considered in analogy to cultural and informational goods and services, rather than assimilated to mere technology devices (TV, VCRs, etc). In this respect ICT cannot be assimilated in drawing projections scenarios to Telephone, Radio and TV.

Which of the two views finds stronger support is not indifferent for policy. Assuming and showing that disadvantaged groups are simply a few paces behind in the same S-shaped curve as other groups, the gaps will be filled over time and only minimalist policies will be needed (general argument for 'no action' option).

On the contrary, by assuming and showing that disadvantaged groups are on a qualitatively and radically different trajectory and are left behind as the rest of the world moves ahead, it follows that more active policy intervention is needed to fill the gaps.

The two views have been given an in depth and fair assessment in **Annex 3** by using a mixture of:

a) data on access and usage over time;

b) theory based arguments;

c) historical comparisons.

Such analysis clearly support the more realistic view, as could also be already derived from the quantitative data presented in paragraph 1.1 (see further analysis in Annex II). Beyond the relative lack of progress to realise the Riga targets, the evidence gathered for this IA shows that, as access to ICT increases, new processes of differentiation in use of ICT can lead to new inequalities and contribute to further exclusionary processes if not tackled by e-Inclusion policies.

Moreover, often the supply side does not address spontaneously the problems of the socially excluded and can at times create further barriers and exacerbate the problem.

It is for these reasons that **e-Inclusion policies are needed**.

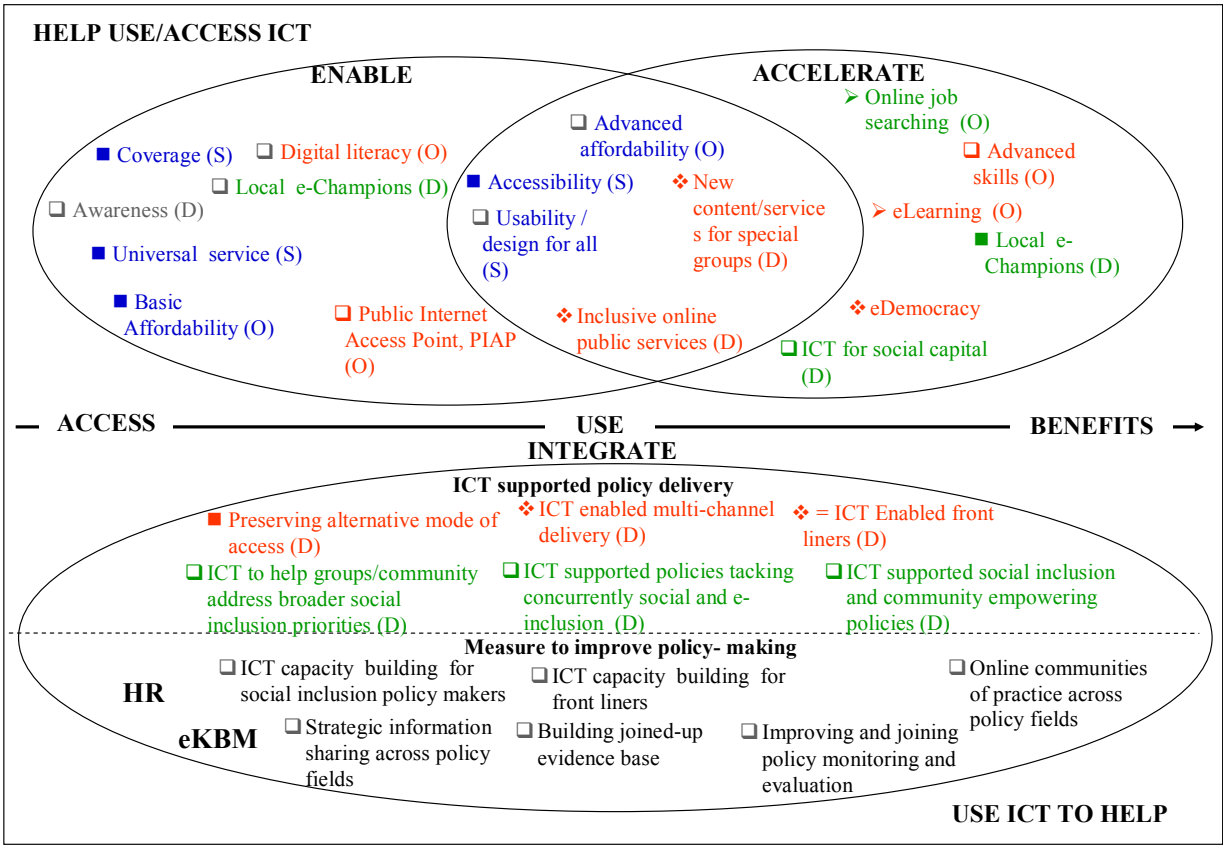
1.5. Should the EU act?

In order to answer the question whether the EU should act, a conceptual map on e-Inclusion policies is provided, which helps assessing their current status. Such assessment is also instrumental to outline the lessons learnt and the related European added value (par. 1.7).

1.5.1. A conceptual map of e-Inclusion policies

The conceptual map visually represented below identifies three macro-areas of policies termed for the sake of simplicity: a) Enable; b) Accelerate and c) Integrate.

Exhibit 2 Mapping e-Inclusion Policies



Notations and Acronym of Error! Reference source not found.

Types of intervention

■ = Legislation/regulation/directives/ fiscal measures

❑ = Other non regulatory and non fiscal measures

❖ = Strategies and implementation to transform and innovate the provision of online public services

➢ = as above but requiring partnerships with supply side actors

Most likely/appropriate level of intervention

Local

Local/ National

National and/or EU = dashed frame

Crossing all levels = X

Macro target of intervention

D= demand side measures addressing individuals /groups/ communities needs

S= supply side measures targeting private sectors and other civil society players

O= measures overlapping demand and supply

Acronyms

HR = Human Resources

eKBM= eEnabled Knowledge Building and Management

The fairly exhaustive repertoire of specific measures included above in each area already shows what they are about:

- The targets of the measures: Demand, Supply, Mixed Demand/Supply;

- The typology of instruments: regulatory, non regulatory, strategies and actions for online public service transformation and innovation;

- The most likely and appropriate level of intervention/competence: local, national, EU and cross-levels.

A very brief illustration is provided of the various areas identified in the exhibit above. Horizontally the map uses a progression logic resembling that of the model of digital inequalities and inclusion processes presented in Annex 3 and moves from access, through use, to benefits.

Vertically it distinguishes between the upper part that is about helping individuals/communities access and use ICT to improve their lives and life chances, whereas the bottom part is about using ICT to help individuals/communities improve their lives and life chances even if they will not become in the short term regular and effective users of ICT.

The left end side of the Enable areas includes measures strictly addressing mental and material access. They aim at removing barriers and providing opportunities to access ICT. Five classical measures in this areas are coverage (broadband and geographical divide), universal service provisions, basic affordability (with competition and regulations addressing the supply side and tax relief schemes to purchase PCs and get connections addressing demand), availability by way of spreading Public Internet Access Points (PIAPs) and motivation through awareness campaigns.

Enable and Accelerate overlap at a point where the issues of access, use, persistence of use or dis-adoption are very entangled, uncertain and can turn in any of the possible directions (from access and infrequent use to more regular use and possibly to dis-adoption or conversely to persistence and breadth of use). Accessibility, advanced affordability (referring to technical means of access and to autonomy of use or place of access) and usability are probably closer to access and eEnable. On the other hand, the provision of transformed, citizen-centred and inclusive existing public services, together with the provision of new targeted contents and services for special groups (addressing the Riga areas of cultural diversity, ageing and marginal youth), increase the chance of meeting needs and interests thus contributing to stimulate use and thus moving toward empowerment as a result of persistent and more effective use.

The more clearly Accelerate policies consist in supporting the acquisition of more advanced skills to make use more effective alongside the stimulus and support to the realisation of more advanced and targeted applications and services.

Finally, the bottom part is about using ICT to help individuals/communities improve their lives and life chances even if they will not become in the short term regular and effective users of ICT.

– First, most straightforward policies in this field are the preservation and reinforcement of alternative mode of access through ICT enabled multi-channel delivery together with the use of mobile and wireless to ICT enable intermediaries who can brings access and effective use of ICT based services into the home of the less advantaged individuals;

– Second, there are more wide-ranging approaches in which ICT are mainstreamed into broader social inclusion policies to help groups at risks and deprived communities address their most pressing priorities and needs;

– Third, there are those that can be termed 'meta-measure' in that they aim at the policies themselves and precisely at rationalising and improving in terms of their degree of integration across policy silos, of their evidence base and of their supporting monitoring and evaluations mechanisms.

1.5.2. The policy challenge: current status of e-Inclusion policies

In Annex 1 (table 12) a number of policy studies financed by the EU are listed, which provide the most up-to-date, extensive, comprehensive and in depth review and assessment of the current status of e-Inclusion policies at national and EU level. They have been realised by different organisations and for different Commission departments, yet to a large extent they converge in their appraisal of e-Inclusion policies. Below such appraisal extracted from the mentioned studies is presented in a very synthetic fashion. As will be further illustrated in the following paragraphs, these studies corroborate and confirm the views gathered in the past few years from stakeholders in the various stage of consultations illustrated in Annex I and within the work of the i2010 e-Inclusion subgroup of Member States representatives.

Overall access policies can be considered so far only very moderately successful. Efforts at spreading coverage have been relatively successful but differences in the geographic coverage of broadband clearly point to persisting market failures not yet successfully addressed by policies. Tax relief and other fiscal measures to overcome financial barriers have achieved some success but present some limits. In many cases they have been limited to people already in employment thus missing the unemployed. Public Internet Access Points (PIAPs) and awareness campaign have had little impact because only in a few cases have they been embedded in deeper and broader local level policies and contexts. In general the cases of successful access policies show that they focus on the measures targeting the most deprived communities and complementing other local actions. It can be concluded that access policies have not yet addressed effectively market failures, they are fragmented, not sufficiently targeted to groups at risks and deprived communities, and not mainstreamed into wider social inclusion policies;

The situation of e-Accessibility is clearly unsatisfactory despite good efforts of part of the industry[27]:

- market failure is evident from lack of provision of accessible ICT, lack of choice and high prices of accessible ICT;
- at national level accessibility policies are either insufficient or developing in different ways from one Member State to another thus endangering the principle of the Internal Market;

[27] EICTA, 2007, Moving Towards a Fully Inclusive Digital Europe

- e-Accessibility provision in EU relevant directives lacking a mandatory basis are partially implemented, and general fragmentation further increases risks for the Internal Market;

- Additionally in the related area of usability, especially in the sector of online public services, the situation is unsatisfactory even for individuals with no major disadvantages. There is often an overload of information and services but not enough tools helping users find the right information or providing sufficient interactions, no concentration of services, a lot of fragmentation. Successful national portals such as the UK DirectGov are good examples.

In terms of the dimensions of digital inequalities discussed in the conceptual framework it is evident that possessing more advanced technical means of access and using broadband at home (place of access and autonomy of use) are still materially outside the reach of less advantaged groups, thus strongly limiting their chances of increasing breadth and quality of ICT use and, consequently achieving benefits from it. Policies in this area have so far failed to address market failure and steer supply in the desired directions;

The situation is mixed when considering the inclusiveness and citizen-centricity of online public services. Aggregate take up figures are still low and growing slowly, although areas of success can be identified i.e. tax online and in general e-Government take up by business. With few exceptions, little targeted efforts have been made so far to increase usage of e-Government services by those who in many cases need them most (especially for access to welfare benefits and to job opportunities, namely disadvantaged groups). If such efforts are not made and if multi-channel supporting strategies are not implemented this could compound the difficulties of such groups in accessing basic services enabling them to participate in society and exert their rights;

In the field of digital literacy policies are not sufficiently targeted, are fragmented and mostly concentrated on providing only the most basic and operational skills through standardised courses following the guidelines of the European Computer Driving License[28]. While commendable, these efforts fail to tackle to more subtle and sophisticated cognitive skills required to increase quality of use and, consequently, the benefits derived. Little use is found of policies supporting local e-Champions approaches and peer learning to diffuse more advanced skills but they exist and they should be encouraged;

Policies using ICT to improve employability are very scattered and fragmented. New initiatives however are heading in the right directions such as the recently adopted e-Skills policy relying on key partnerships between public authorities and private champions in e-Skills. Also fragmented isthe provision of other advanced empowering mechanisms provided by actions in the field of such as e-Democracy , e-Learning and ICT for social capital;

Policies for specially devised and targeted content and services for seniors citizens, marginal youth and cultural diversity are scattered and limited (see Annex 2, par. 8.7 and 8.8);

In terms of policies aimed at encouraging the use of ICT to deliver services to disadvantaged groups more effectively and efficiently, the situation is at a very embryonic stage due to still limited use of ICT enabled front desks and the lack of using multi-channel strategies to

[28] www.ecdl.com/

provide services and reach users. Besides, delivery approaches inspired by the integration of measures for e-Inclusion as part of broader social inclusion policies are still an exception in policy-making.

Finally at a general level, EU policies directly or indirectly related to e-Inclusion are also fragmented and forego the benefits that would derive from integration, mainstreaming and from a more holistic strategic approach.

In view of the data presented earlier and the appraisal of e-Inclusion policies (see also Annex 2), there emerges ample scope for improvement on the way to achieve a fully inclusive information society at both EU and Member States' level.

Autonomous socio-economic processes already tend to produce inclusive outcomes and have had positive results in many European countries in terms of internet access and use, broadband penetration, affordability of electronic communications. However, when disparities within categories of users in terms of geographical, social, economic, physical and educational conditions are taken into account, a proactive policy engagement and a greater coherent approach are needed to extend the benefits of the information society to all.

1.6. European Union grounds for action: subsidiarity and proportionality tests

Following the analysis of the societal and policy challenges that the current evolution of societal uptake of ICT is posing, there is an evident **need to act at EU level** in public policy terms.

Persistent and dynamic divides together with more explicit (internal) **market failures** (such as for e-Accessibility) will not be solved without public policy intervention either in the form of better coordinating existing efforts of public and private entities or by proposing regulatory interventions when needed.

A clear challenge that has also emerged from the analysis is the ***lack of coherence between initiatives both at Member States and EU level with insufficient focus and targeted policies for groups at risks.*** There is still a need to establish the enabling conditions for a truly inclusive information society.

1.6.1. In the area of e-Inclusion policies

Achieving many of the Riga targets would require direct policy interventions falling outside the EU direct competence. However, in line with the **subsidiarity and proportionality principles**, the EU can complement Member States and support actions to address e-Inclusion at EU level with increased added value. The EU Treaty contains principles with regard to social cohesion and equitable development on which subsequent European policy frameworks (e.g. the EU Sustainable Development Strategy) are based.

The root causes and key drivers for the highlighted societal and policy challenges affect the European level in two dimensions:

– From a *root perspective*, the information and knowledge society presents spill-over effects which are cross-boundary by definition. Most of the challenges (e.g. using ICT for delivering added value services to the ageing society or providing e-Government services to citizens) have a truly European dimension. Lack of digital skills for groups of persons at

risk of exclusion can be a hindrance to mobility and an obstacle to enjoy the benefits of the single market in terms of employment and social integration. Similarly, the lack of many advanced services that the information society can offer for the benefit of European users are frustrated by a number of legal and technological barriers, for instance in the case of ICT for ageing well and e-Accessibility, that fragment the internal market for ICT tools and services;

– From a *solution perspective,* the European dimension relies on the fact that by improving policy coherence at EU level and fostering activities, such as in research and innovation, the EU can create the necessary scale for significant impacts and sufficient replicability of successful experiences. EU activities can act in this case as a key multiplier of impacts.

The proposed activities in the e-Inclusion Communication fully respect ***the proportionality*** principle as they mainly concern measures on awareness, coordination and support actions that impose almost no burden on stakeholders and require only little efforts for the EU itself or for Member States.

1.6.2. In the area of e-Accessibility

In the area of e-Accessibility, the IA provides evidence of a persistent *market failure* in addressing the e-Accessibility challenge. It suggests that neither coordination of Member States activities in the domain, nor timid efforts pursued by stakeholders have produced sufficient mechanisms to tackle the challenge in organic and systematic ways and have scored poorly in terms of effectiveness. The IA also highlights potential challenges to the internal market for accessible ICT technologies, if the current situation remains unchecked with negative consequences for users. It therefore recommends considering possible legislative action in the course of 2008 at the EU level. This will allow for positive impacts not only for users by strengthening their rights but also for the ICT industry and service providers by incorporating the internal market dimension. In this respect, it also suggests that further legislation would be assessed in terms of the ***proportionality*** of measures to be adopted and regarding their scope for application.

1.7. Lessons learnt and the European added value

The studies mentioned earlier and listed in

Table 8 in Annex converge in concluding that, while EU and Member States policies for e-Inclusion are commendable, they suffer from *shortcomings*. Namely they:

– Are fragmented and lack coordination;

– Lack mainstreaming of e-Inclusion across policies;

– Are poorly targeted to the needs and interests of disadvantaged groups.

These studies and consultations with business entities and user organisations in several workshops and also within the work of the i2010 e-Inclusion subgroup of Member States representatives also provide as common *recommendations* that:

– The several dimensions of digital exclusion ranging from a number of e-Exclusion factors such as e-Accessibility, digital literacy, exclusion from publicly provided services, etc.

closely interact and mutually reinforce if policies remain fragmented and not effectively coordinated and mainstreamed;

– e-Inclusion is to be tackled in systemic ways relying on the interaction of all possible instruments and all stakeholders stressed the importance of EU level multi-dimensional action thorough: mechanisms supporting research and innovation, regulatory measures, policy coordination;

– e-Inclusion does not only mean the provision of policies, technologies and services countering risks of exclusion and fostering social inclusion. It also has the potential to translate into economic engagement hence business opportunities for the individuals and the economy overall. More e-Inclusion can lead to more economic growth;

– Inclusion in the information society and especially of marginalised groups does not only depend on active coordination of policy goals and implementation strategies at EU, national, regional and local level;

– Work on the enabling factors of e-Inclusion needs to be pursued. Workshops with key stakeholder and studies identified access, accessibility, digital literacy and inclusive services as key enablers for inclusion and engagement in the information society

It results that, given the currently fragmented e-Inclusion policy landscape, *impact* is limited:

for users – to fully realise their benefits,

for industry – to realise a thriving inclusive ICT business in the internal market,

for institutions – to achieve efficient and coherent policies.

There emerges a clear need and scope for EU action both in the direction of more coordination and integration of existing policies and initiatives and in the direction of stimulating and supporting further efforts to enable and accelerate e-Inclusion.

The **added value** of the European e-Inclusion Initiative rests on its ***contribution to the realisation of a common and systemic approach to e-Inclusion*** to implement these recommendations, address thereby the shortcomings and achieve the impacts mentioned above. It relies on strategies aiming at improved synergies across policy initiatives at EU and national levels. It also relies on efforts to cluster business led initiatives, increase their visibility and ensure replication of successful ones. By doing so, the initiative is aimed at delivering so called "multiplier effects" necessary to increase positive impacts of ongoing actions at all level.

The enhanced impact derives from the fact that, as the causes of digital exclusion are mutually reinforcing, so are the benefits of inclusion in the information society once the necessary drivers are activated and act synergistically. This will finally deliver greater impact in terms of social cohesion and economic growth for society (see more on this in Annex 4).

The e-Inclusion Initiative aims precisely at unlocking this potential combination of positive effects by proposing a common integrated approach. Coordinated actions will deliver more than separate vertical ones, in other word the end results will be greater than the simple sum of the separate components.

Most of the value added will be derived from clustering and mediating activities on e-Inclusion. Experience shows that with the help of the Commission involvement, dialogue between stakeholders and users on defining inclusive services and technologies is encouraged and can reach successful outcomes. Without a central role played by the Commission in replicating positive experiences, these latter ones will remain largely isolated and will not produce widespread impact. EU research and innovation programmes are needed to share risks and achieve economies of scale in Europe, especially in these areas where market failures clearly hamper progress. Finally, given the fragmented regulatory landscape and solutions for e-Accessibility and the continuing market failure in coping with this domain, exploring a more central role for establishing legislative measures in this area is justified by necessity, subsidiarity and proportionality tests (see annexes 5 and 6).

At this stage, progress is to be measured on a number of supply and demand side indicators (the Riga Dashboard, see annex 2), though this IA contains initial estimates on economic benefits. Future studies and modelling should be undertaken to further strengthen the evidence and understanding of the relationship between these indicators and wider economic and social progress.

2. OBJECTIVES

2.1. General objective, specific objectives and actions

Following the analysis of the societal and policy challenges that the current evolution of societal uptake of ICT is posing, the ***General Objective*** of the proposed communication for a European e-Inclusion Initiative is: ***to promote both inclusive ICT and the use of ICT to achieve wider inclusion objectives while providing grounds for economic growth and new business opportunities.*** This objective –and some of the operational targets- are clearly stated in the 2006 Riga Ministerial Declaration[29].

However, the Riga Declaration did not clearly spell out the way to achieve those targets, nor natural dynamics have come forward in this direction. In other words, Riga did not provide a ***framework for action***. As anticipated in *Table 3* in chapter 3, a number of policies are already undertaken and intend to support the achievement of the Riga targets. However, as shown by available data in most areas only limited progress has been made (see more in Annex 2). A strong reminder of the appeal of Riga for an inclusive information society appears to be needed, i.e. raising awareness and reinforcing commitment.

In addition, and as highlighted in section 1.7 a number of lessons have been learnt which confirm that the use of policy instruments should be improved for the delivery of e-Inclusion objectives.

On the one hand, the need to mainstream e-Inclusion into other policies should be recognised by increasing coordination at all levels. On the other hand, existing instruments and policies in the field of research, innovation, and legislation need to be mobilised to create the enabling conditions for e-Inclusion, accelerate uptake of inclusive services multiply positive impacts through stakeholder engagement. The lessons learnt also point to the fact that –as e-Exclusion factors mutually reinforce- so e-Inclusion policies produce greater impact if implemented in synergistic ways.

Following the analysis of the main problem in chapter 1 (lack of progress on Riga targets), and the identification of key challenges in the demand, supply and institutional sides, the IA suggests that the ***Communication on the European e-Inclusion initiative should propose an integrated strategy increasing the coordination and coherence of policies between Member State initiatives and also at EU level to maximise their impact.***

Therefore, the e-Inclusion initiative, which is defined in the e-Inclusion Communication, should propose two main elements:

– Raise awareness on the potentials of inclusive ICT (through an e-Inclusion campaign in 2008) and foster awareness among policy-makers of the fact that e-Inclusion policies need to be tackled organically in order to have significant impacts, since its many dimensions interact and mutually reinforce. These measures will also attempt reinforcing best practice sharing (i.e. in replicating positive experiences for broadband penetration, digital competences) and lay down the conditions for innovative and inclusive services.

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[29] See also Riga Ministerial Declaration, *op. cit,* § 4

– Provide a framework for action along with three operational objectives to address e-Inclusion challenges for:

  - Users: bridging the digital availability, accessibility, affordability and ability gaps,
  - ICT industry and service providers: stimulating and enabling inclusive ICT as a viable and thriving business,
  - Public authorities: putting in place actions and initiatives aimed at coherent and efficient e-inclusion policies.

– Within this framework highlights of actions are proposed to be:

  - Exploring opportunities for proposing legislation in the area of e-Accessibility as a key enabler for a fully inclusive information society. Following the demand of the 2005 Communication on e-Accessibility to thoroughly assess this domain, the impact assessment proceeds to a specific (and more detailed analysis) in annexes 5 and 6;
  - Fostering projects targeted at specific groups at risk of exclusion in ICT research and innovation within the FP7 and CIP (ICT-PSP) programmes for new inclusive and barrier-free ICT and for encouraging their innovative deployment;
  - Improving coordination of policies and activities for e-Inclusion at all levels (national, regional and stakeholder-led) and monitoring.

The full achievement of these objectives will require efforts on the side of all players and particularly by Member States, regional and local governments, the private sector and Non Governmental organisations (NGOs). Many intervening factors like the effects of other general social or economic policy measures, mediate for the achievement of targets and the success of the proposed initiative. Yet, the proposed Communication provides support and stimuli for players at all levels to step up efforts.

On the realisation that many activities and policy measures are occurring at the EU as well as Member States and stakeholders' level, the IA suggests focusing on actions for which the EU can have greater added value resulting from the coordination and enhanced coherence of individual ongoing initiatives at all levels.

The objectives and actions of the Communication are identified below. They match the SMART (Specific, Measurable, Accepted, Realistic, Time depended) requirements of the Impact Assessment Guidelines.

- **Specific**. The general overarching objective can be declined into a specific awareness effort and three very specific axes each corresponding to a specific objective. Each specific objective is in turn broken down into operational objective or outputs/actions;
- **Measurable**. Their measurability (see Section 6 on monitoring and evaluation) should be ensured by their formulation and by the monitoring and evaluation mechanisms already in place (i.e. Riga Dashboard) and by the new ones (i.e. e-Inclusion Impact Measurement Framework);

- **Accepted**. As stated at the very beginning, the actions proposed by the Communication rest on a strong consensus of all involved stakeholders and represent an answer to the invitations that Member States have made to the EU to act in these areas. So they can count on a high level of acceptance ensuring their feasibility and safeguarding the principle of proportionality;

- **Realistic**. the objectives are realistic in that their added value is to provide coherence and increase efficiency and effectiveness of the many efforts and action that are already ongoing at both EU and Member States level;

- **Time-dependent**. They fully respect the timing set in the i2010 framework in that many high impact activities will be initiated and some also realised in 2008 with steady follow-up in the following 5 years.

The general objective is broken down in the following specific objectives with a number of proposed outputs/actions:

Box 2: Specific objectives and outputs/actions

"e-inclusion, be part of it": Raising awareness, promoting good examples, and connecting efforts
- Campaign, "e-inclusion, be part of it" - A High-Level Conference on e-inclusion and European e-Inclusion Award
1. Enabling the conditions to take part in the information society
1.1 Bridging the broadband gap
- e-Inclusion in the "Regions for Economic Change" - Connecting regional initiatives - Survey on the funding of information society projects by EU Rural Development and Regional Policy programmes, as input for new orientations in 2007-2013
➢ 1.2 Bridging the e-accessibility gap
- explore horizontal legislative approach for an accessible information society - Work on standardisation and requirements for accessibility that can also be used in public procurement of ICT. - Interoperable solutions for total conversation and access to emergency services. Solutions for accessible digital TV. - European training programme on Inclusive ICT Design (Design for All). - Strengthen follow-up of e-accessibility requirements in current EU legislation and accessibility of public websites, support by common benchmarking.
➢ 1.3 Closing the digital competences gap
- Basic digital literacy training those most at risk of exclusion. - Recommendations on digital competences' status.
2. Accelerating effective participation of target user groups at risk of exclusion
➢ 2.1 Targeting the socially disadvantaged through modern public e-services
- Reinforce inclusive e-government services and e-participation. - e-participation programmes for reinforced exchange and practice
➢ 2.2 Ageing well in the information society and ICT support for those at risk of exclusion due to

health condition
- implementation of the EU Action Plan on "ageing well in the information society" - Support for research and deployment for ICT-enabled innovative solutions relating to ageing - Recommendation on e-Health interoperability and European initiative on telemedicine
➢ 2.3 Exploring ICT-enabled solutions for increased economic and social opportunities and choice for young people and migrants
- Explore potential of ICT for services empowering people (in particular young at risk of exclusion, migrants and cultural minorities) - Research and analysis into these new areas of e-inclusion
3. Co-ordinating and mainstream e-inclusion actions to maximise lasting impact
➢ 3.1 Enhancing and sustaining impact through mainstreaming e-inclusion and co-ordinating actions by joining forces
- Address potential of ICT in social and economic policies and in related impact assessments. - Promoting social inclusion in the application of universal service principles in electronic communications. - Co-ordinate efforts on e-inclusion and join forces in an open e-inclusion partnership - Closer co-operation between stakeholders and support organisations representing users
➢ 3.2 Comparing progress and improving understanding of e-inclusion
- Monitoring and analysis of e-inclusion evolution, "Riga Dashboard" - Surveys and studies for the e-inclusion agenda

All actions taken together cover the e-Inclusion policy targets set in the Riga Ministerial Declaration. All these actions are non regulatory.

2.2. Consistency with the horizontal policy objectives of the European Union

The general and specific objectives of the e-Inclusion Communication are fully consistent with broader EU principles.

Social cohesion is one of the objectives of the European construction process, as mentioned in the Single European Act, the Amsterdam Treaty and the Lisbon and Sustainable Development[30] Strategies. The Lisbon Summit highlighted social policy as a core element in Europe's strategy for becoming "the most competitive and dynamic knowledge-based economy in the world, capable of sustained economic growth with better jobs and greater social cohesion" by 2010. The European Council of Lisbon in March 2000 recognised that the extent of poverty and social exclusion was unacceptable and that a more inclusive European Union was considered an essential element in achieving this goal. The Lisbon Council agreed to adopt an overview of policies that combat social exclusion and promote inclusion through an Open Method of Coordination. The strategy made a substantial plea on the objective to ensure that all citizens are capable to live and work in an Information Society. E-Inclusion in this regard was considered as one of the constituents and social dimensions of the development of the knowledge based economy, overall inclusion and cohesion policies.

As a part of the Lisbon strategy the eEurope action plan (2002 until 2005) contained dedicated e-Inclusion action lines, which aimed at enhancing a "design for all", "public Internet access points" and the adoption of web accessibility guidelines in public websites. Within eEurope

[30] Council Conclusion on the Review of the EU Sustainable Development Strategy (EU SDS).http://register.consilium.europa.eu/pdf/en/06/st10/st10117.en06.pdf

2005 the fields e-government, e-health and e-learning as well as e-skills and digital literacy required to use ICT were accentuated. The European Council of March 2005 re-launched the Lisbon strategy by refocusing on growth and employment in Europe, and the i2010 strategy[31] is the information society contribution to this revised strategy. The third pillar of the program i2010 introduces the field of "inclusion, better public services and quality of life". An Information Society that is inclusive provides high quality public services and promotes quality of life. i2010 is the digital economy component of the revised Lisbon strategy for growth and jobs. Emphasis is placed on digital literacy as a priority objective as well as on public services.

The 2006 **Spring European Council**[32] stated that "focused, effective and integrated ICT policies at both European and national levels are essential to achieving the Lisbon goals of economic growth and productivity. As such, the European Council calls on the Commission and the Member States to implement the new i2010 Strategy vigorously".

In March 2006, the European Council also adopted a new framework for the social protection and social inclusion process with a new set of common objectives, among others: access for all to the resources, rights and services needed for participation in society, preventing and addressing exclusion, and fighting all forms of discrimination leading to exclusion[33].

The 2007 **Spring European Council** stated the need to strengthen economic and social cohesion throughout the Union. The European Council highlighted the importance of the social dimension of the EU. The European Council also stressed the need to fight social exclusion. It invited to give more attention to active inclusion, i.e. ensuring adequate levels of minimum resources for all, balanced with making work pay.

The EU and its Member States endorsed the UN Convention on the Rights of Persons with Disabilities as a fundamental step for the promotion, protection and full realisation of all human rights and fundamental freedoms for all persons with disabilities.. In this respect efforts undertaken for a rapid signature of the Convention were recognised and participants encouraged further initiatives for quick ratifications. Some of the EU legislative provisions relate to the Convention (in particular Directive 2000/78/EC establishing a general framework for equal treatment in employment and occupation).

Consensus has been reached to work on a coherent and coordinated approach for European implementation of the UN Convention on the basis of close cooperation between the Member States, the Community and civil society. Such a coordinated approach will be facilitated by the fact that the UN Convention encompasses the essential elements of the EU Disability Strategy, combining anti discrimination, equal opportunities and active inclusion.

Non-discrimination is at the core of the UN Convention and it is also among the fundamental values of the European Union enshrined in Article 13 of the Treaty establishing the European Community. EU legislation against discrimination in employment and vocational training is already in place in the Member States. Nevertheless a vast majority of the EU citizens consider it is still a disadvantage to be disabled. To tackle discrimination in other areas of life

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31 European Commission, 2005, i2010 – A European Information Society for growth and employment - COM(2005) 229 final

32 http://ec.europa.eu/councils/bx20060323/index_en.htm

33 http://ec.europa.eu/employment_social/social_inclusion/objectives_en.htm

the initiative announced by the European Commission as a follow up of the European Year of Equal Opportunities for All could provide the basis for completing the EU framework of protection against discrimination, inter alia on ground of disability, within the limits of EU competencies. This in turn could help to underpin the effective implementation of the UN Convention.

Four principles inform the EU's approach to the UN Convention: non-discrimination; equality of opportunity; autonomy and participation and inclusion. The EU has also underlined that existing human rights instruments apply in their entirety to persons with disabilities and that the main focus of the new convention must be to secure full enjoyment of human rights by people with disabilities. The Commission seeks to work closely with a wide range of disability NGOs on the question of the human rights of people with disabilities, including with respect to the UN Convention.[34]

The Commission also established the European Disability Action Plan (DAP) to ensure a coherent policy follow-up to the European Year of Disabled people in the enlarged Europe. The Plan provides a dynamic framework to develop the EU disability strategy[35].

e-Inclusion, and specifically digital literacy, will also be considered within the actions implemented within the "European Year for combating poverty and social exclusion" in 2010.

[34] http://ec.europa.eu/external_relations/human_rights/disability/index.htm

[35] COM(2003) 650 final,30/10/2003

3. DEFINING THE OPTIONS

e-Inclusion has been already addressed in a number of policies for information society starting with the first e-Europe programmes[36] and continuing within the i2010 initiative (see section 2.2). In many priority areas identified in the Riga Ministerial Declaration, objectives and actions up to 2010 and sometimes beyond have been envisaged already at EU level. Many more initiatives have been identified in the same areas at national, regional and local levels in all Member States (see *Table 2*).

However, a common reference framework and the supporting mechanisms to exploit all possible synergies across the different areas, is still missing and policies are fragmented, defined and implemented often along strictly vertical lines without much coordination and integration.

The proposed options base themselves on ongoing policies and activities in the area of e-Inclusion and seek to assess ways of improving the current situation within the proposed European e-Inclusion Initiative, namely:

(1) Ensure that all initiatives -which very often address cross-cutting issues affecting several sectors of society (e.g. multi-channel delivery strategies in e-Government, digital literacy measures) - pay more attention to the specific needs of groups at risk of exclusion.

(2) Ensure that initiatives for groups at risk of exclusion, beyond promoting greater and more effective own use (direct use) of technology by removing key barriers and stepping up digital competences, also address all opportunities for transforming through ICT existing government services for the vulnerable, including by involving and supporting frontline staff and intermediaries in bringing the benefits of digital services to non ICT users into their homes or at community centres.

(3) Maximize the impact of the initiatives by monitoring progress, exchanging good practices, mobilizing stakeholders fully and by guaranteeing that initiatives with similar objectives and targets developed in different areas (e.g. ICT skills and competence for elderly people) are coherent and synergetic.

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[36] For a review of Information Society policies see also: European Commission, 2005, *Preliminary analysis of the contribution of EU Information Society policies and programmes to the Lisbon and Sustainable Development Strategies,* http://ec.europa.eu/dgs/information_society/evaluation/data/pdf/studies/2005_lisbon_final.pdf

Table 2: Policies already defined in Riga areas at EU level

Other Riga areas	Objectives	Actions
Halving usage disparities by 2010	• Horizontal objective: no specific initiative can be mentioned, all of those below are expected to contribute to the achievement of this objective	
Older workers and elderly people COM(2007)332 "Ageing well in IS", June 07	Raising awareness and building consensus	• Make ICT and ageing prominent in EU policy • Develop common visions, strategies etc. -> Innovation platform for ageing well • Contribute to e-Inclusion 2008 Initiative + internet portal
	Enabling conditions in place	• EC to further assess market barriers, research and large scale pilots (on RFID) + Recommendation on privacy issues • EC to provide guidance for removing legal and technical barriers + map national regulatory and organisational approaches + exchange practices • EC to issue Recommendation on e-Health interoperability • Member States, LGA etc. to enforce e-Accessibility • Member States, etc. to promote access (broadband and digital competences). Exchange practices + monitor progress • Study and possibly provide Guidance on ethical aspects
	Promoting uptake	• In CIP, pilot projects on independent living and chronic disease monitoring + explore active ageing at work • Link to Structural Funds and innovative use of standards in public procurement • European award scheme for smart homes and independent living applications -> exchange of good practices • Develop training on ICT and ageing (design for all, e-Accessibility etc.)
	Preparing for the future	• Achieve leadership in innovation in ICT for ageing: • step up research on e-Health and e-Inclusion in FP7 • new research initiative under Article 169 on "Ageing well in the IS"

Geographic digital divides COM(2006)129 "Bridging the broadband gap", March 06 and May 2007 Conference conclusions	Close supply/demand gaps for broadband access services in under-served areas	• On the supply side: • review regulatory framework on electronic communications (radio spectrum management, etc.) • assess 2000-2006 IST policies under EU Rural Development and Regional expenditure; orientations for new actions in 2007-2013 • develop national broadband strategies with clear regional targets for under-served areas and strategic usage of EU, national and local funding complementary to private investment • On the demand side: • promote and develop local digital content production, e-Government services and broadband public services such as e-Health and eLearning to foster uptake of value added services • make ICT skills and digital literacy development an integral part of broadband strategies • exchange best practices on broadband initiatives for less-developed, remote and rural areas
e-Accessibility	Accessible ICT for people with disabilities and the growing group of elderly people	• 2005 e-Accessibility Communication launched actions to develop standards for reference to e-accessibility to be possibly used in public procurement, an analysis of certification and compliance schemes, and assessment of the legislative situation (as well as international cooperation), • Analysis of progress of e-accessibility in the eCommunications Framework (INCOM subgroup of the COCOM regulatory committee of the Framework) • Analysis of progress of e-accessibility in the R&TTE Directive (TCM group) • Stakeholder cooperation (e-Inclusion partnership) e.g. on accessible digital TV • Member states cooperation in e-Inclusion subgroup • Research projects in 6th Framework Programme
Digital literacy and competences Annex to COM "e-Skills in 21st century", (in preparation)	Promoting long-term cooperation and monitoring progress	• Regular dialogue with stakeholders and online community • Monitoring supply and demand of e-Skills (including global sourcing) + annual report, conferences etc.
	Supporting actions and tools	• EU eCompetence framework in line with EQF • Feasibility of European e-Skills and career portal • Actions within the European Year for combating poverty and social exclusion • Handbook on e-Skills multi-stakeholder partnerships • Develop Europass and online self-assessment tool • Quality criteria for industry-based training and certifications • Promote e-skills education in e-Accessibility and R&D • Develop eCompetence curricula guidelines • Incentives + study human capital investment tax credit for individuals
	~~Empowering future~~	• Exchange good practices for promotion of science, maths and ICT • Support innovative teaching and learning approaches, sense of initiative and entrepreneurship

	generation	• Awareness of parents, teachers and pupils • Reinforce links between ICT, learning and innovation • Experiment web 2.0 to promote ICT training and careers to young people
	Fostering employability and social inclusion	• Launch e-Inclusion 2008 Initiative in line with Riga • Encourage CSR and partnerships between (ICT and business) trainers and job placement services • Support multi-stakeholders initiatives
	Better and greater use of eLearning	• Recommendations on eLearning initiatives for enterprises • Develop eLearning courses and brokerage mechanisms • Network eLearning and training centres in liaison with European Network of Living Labs
Cultural diversity Riga declaration	Identify priorities and needs for action	• Study on the potential of ICT for the promotion of cultural diversity • Thematic network on social integration and cultural diversity under CIP-ICT PSP programme
Inclusive e-Government Riga + "inclusive e-Government roadmap" January 07		• e-Accessibility Guide by end 2007 + accessibility of all public web sites by 2010 • Disseminate user-centric security concepts • Common European approach for inclusive eGov 2007-2010 (priorities, core disadvantaged groups etc.) • Develop key services (CIP pilots and Member States projects) and policies in user-centric and inclusive way for target groups, using multi-channels, incentives and intermediaries so that no one is left behind • Specifications for Multi-Platform service delivery by end 2008 • Electronic documents in EU-wide recognised formats available also by people with disabilities • Measure and benchmark progress in inclusive e-Government -> revise approach and roadmap

3.1. The options

The option analysis assumes as a starting point the e-Inclusion targets provided for in the Riga Ministerial Declaration. Therefore, the options represent different strategies for reaching those targets. Three options have been analysed against the identified objectives to be reached:

(1) Continuing the status quo, carry on separated activities at EU level and rely on internal social and market dynamics to close distances in the information society;

(2) Pursue some specific actions with limited targeting of groups at risk with no additional coordination or integration of efforts and with only;

(3) Enhance synergies and impact through a common integrated strategy which is:

- better targeted to the needs of groups at risk;
- more coordinated and integrated across policies fields;
- focused both on encouraging groups at risk to benefit from ICT and on using ICT-enabled solutions to provide groups at risk with inclusive services more effectively;
- monitoring and evaluation mechanisms based on stronger and more robust knowledge and quantitative evidence.

3.2. Option A

Option A considers the continuation of the *status quo* with a number of specific policies for e-Inclusion at EU and Member States level. It assumes that no further action is taken based on the belief that access and use gaps will automatically close over time. This option also assumes that the current experimental measures at EU level such as the ones aimed at fostering engagement of stakeholders in a number of areas will be *one-off* or pursued in a discontinued manner. This option constitutes the benchmark against which option B and C will be assessed.

3.3. Option B

Option B assumes that a number of specific but separate initiatives as recently defined by the European Commission are sufficient and will be continued, that only limited targeting action at groups at risk needs to be added without the need to comprehensively address the many interrelated aspects of digital exclusion. This option also maintains that cooperation with Member States, local administrations and stakeholders will not need to be stepped up.

3.4. Option C

This option assesses a coherent approach based on enhanced policy synergies and impact through a common integrated strategy aimed at: a) considering comprehensive and integrated policy responses to the many interrelated aspects of exclusion in the information society; b) establishing the enabling conditions for an inclusive information society; c) accelerating the diffusion of inclusive information society services; and d) increasing impact by better

leveraging from efforts by Member States, local authorities, business stakeholders and civil society organisations.

Enable line

Accessibility. the Commission should explore to propose in the second half of 2008 a horizontal legislative approach to promote accessible ICT with positive outcomes in terms of equal rights to ICT access and use and proper functioning of the internal market for accessible ICT products and services. This should establish a comprehensive EU legal framework for a barrier-free information society: building on a public consultation and an impact assessment in the first half of 2008. This is complemented by targeted EU deployment and research support.

Digital competences. Insufficient **digital competences** are the most critical issue as they shape the likelihood that late comers will continue using ICT and will not stop using them; improve the effectiveness of use; and as a result; achieve individual benefits.

This adds up to desirable social outcomes such as increased human capital leading to improved employability and to more productivity for those already in employment (see more in annex 3 on the quantification of impacts.

Evidence discussed earlier and documented in more depth in annex 2 clearly indicates that many people in Europe have low or no digital competence and that divides along socio-demographic variables persist and in some cases even tend to increase. Riga targets on halving skills divides require much stronger action.

Here, the main call for action is to national and local authorities as well as private players. The EU, given limits imposed by subsidiarity, will support these efforts reviewing their actions and providing guidance.

Broadband. In the spirit of coordination and of realising synergies within the framework of the ICT-PSP programme (part of CIP)[37] it is anticipated to **launch regional thematic networks** on broadband and e-Government as part of the new initiative "Regions for Economic Change"[38].

Accelerate line:

General. Call for and put in place targeted efforts in selected topics and specific target groups at risk of exclusion.

Inclusive e-government actions, as part of the i2010 e-Government Action Plan: in particular with support of the ICT-PSP programme for pilot projects, good practice exchange and investigating issues relating to the delivery of inclusive e-public services to the socially disadvantaged.

The action plan on "ageing well in the information society". Its implementation will be supported in various ways through FP7 and the CIP.

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37 Competitiveness and Innovation Programme, http://ec.europa.eu/cip/index_en.htm

38 http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/index_en.cfm

Other financial support in the area of ICT for ageing, health and disability: the EU R&D and the ICT-PSP programmes will continue supporting research and deployment efforts in these areas. The Commission will also launch in 2008 a "lead market initiative" on e-Health and will follow up on the implementation of the e-health interoperability recommendation.

Integrate line:

Mainstreaming EU level policies. To improve coordination at EU level it is suggested to call upon policy makers to address the potential of ICT in social and economic policies, and conversely, to consider in the use of impact assessments and policy evaluations social inclusion aspects when designing new initiatives related to ICT.

Calling for mainstreaming of Member States policies. Stimulate more policy coordination at national level:

- Through information sharing and stakeholder cooperation (extending the current e-inclusion partnership and using the i2010 framework for cooperation);

- By stimulating better forms of monitoring and reporting schemes relying on a wider range of indicators. In this respect it is worth noticing that this IA also takes stock of the Member States Social Inclusion National Action Plan (NAPs) 2006-2008 and concludes that e-Inclusion is taken into account in a very modest way.

7 countries, including key ones (CZ AT FR LU NL SE IT), do not mention e-Inclusion at all in their NAPs. approaches are fragmented and little systematic analysis of all groups at risk is provided. Comparing these new NAPs with the previous versions 2003-2005 it emerges that the focus on e-Inclusion has decreased considerably. Through increased EU support in the exchange of best practices. In this respect it must be anticipated that e-Inclusion will increasingly be included and addressed both in the new e-Practice portal for good practice exchange and in the new bench-learning activities that are set to start in September 2007 and last for two years aiming at building impact measurement capacities bottom up.

- Improve quantitative evidence and knowledge by launching studies on the socio-economic impacts of e-Inclusion

- Improve monitoring and evaluation. The Riga dashboard benchmarking will continue and will be integrated in the proposed launch of an e-Inclusion Impact Measurement Framework;

- Sustainability. New mechanisms to support sustained and steady stakeholders cooperation will be introduced.

4. OPTIONS IMPACTS AND COMPARISON

Before proceeding to the analysis of the policies implications and qualitatively assessing the impact of the three options, a paint brush assessment of where we are today is provided with respect to the three options and to the achievement of the sought objectives.

Table 3: Where we are and where we can go

Halving usage disparities by 2010	**Policies status** : in option B stage **Objective**: not reachable in the short term *all things being equal* **Option feasibility**: C feasible in short-term; **Impacts time frame:** impact achievable by 2012-2013
Older workers and elderly people	**Policies status** : in option A, moving to B stage **Objective**: not reachable in the short term *all things being equal* **Option feasibility**: C feasible in short-term **Impacts time frame:** mid-term
Geographic digital divides	**Policies status** : in option B stage **Objective**: within reach in the short term with some extra effort **Option feasibility**: C feasible in short-term **Impacts time frame:** by 2010
e-Accessibility	**Policies status** : in option B stage **Objective**: not reachable in the short term *all things being equal* **Option feasibility**: C feasible in the short-term **Impacts time frame**: Impact could start realising by 2008
Cultural diversity	**Policies status** : in option A stage **Objective**: not reachable in the short term *all things being equal* **Option feasibility**: B feasible in medium-term and C later **Impacts time frame:** First impact not earlier than 2012
Inclusive e-Government	**Policies status** : in option B stage **Objective**: not reachable in the short term *all things being equal* **Option feasibility**: C feasible in the short-term **Impacts time frame**: Impact could start realising by 2009

4.1. Options' implications and potential impacts

Halving ICT usage disparities by 2010

For this more general objective stated in the Riga declaration evidence recalled in section 1 and in Annex 2 shows that, even under the more optimistic hypothesis, this gap in usage disparities will definitely not be halved by 2010 without more coordinated and integrated policy efforts. Comparative analysis also suggests that these gaps cannot be filled simply as a physiological process of people slowly moving onto an e-Inclusion path (the S-Shaped curve), for the simple reasons that groups at risks are on radically different trajectories and are falling behind as others move up.

Evidence on measuring progress in e-Inclusion clearly shows that **option A** is inadequate. **Option B** is not entirely satisfactory either while considering that isolated targeted initiatives might deliver some results, but miss on the opportunities of leveraging the interaction of policies and outcomes. For example, initiatives aimed at promoting broadband take up, will not automatically halve the usage gap unless synergistically coupled with initiatives aimed at providing on-line value added services, promoting basic digital literacy or enduring ICT accessibility and usability.

Therefore, in order to meet this objective all players at all level should step up their efforts. **Option C** provides a contribution to this objective by attempting to improve policy making at the EU level and by stimulating and supporting Member States to do the same. Moreover, it tackles the problem in a comprehensive way from various angles: accessibility, access, broadband, digital competences, actions in various areas specifically targeted at groups at risks. Option C cannot be expected to fully realise this objective as this would require action in the market and at Member States level, beyond the Commission's remit.

Older workers and elderly people

Option A: As considered in the Staff Working Paper[39] accompanying the recently adopted Action Plan on ICT for Ageing Well in the Information Society[40], there is a need to step up initiatives in this domain especially in terms of awareness-raising, research, innovation and policy coordination. This option considers the case where no follow up is given to this request and that the challenge of ageing will not be given a high profile in the e-Inclusion agenda. In this case, market opportunities deriving from more inclusive technologies and services aimed at the ageing population would continue to be seized only by niche players foregoing the possibility for the ICT industry to thriving on economies of scale and lowering the chances to make their products and services more affordable. Furthermore lack of interoperability and standardisation of systems, applications and software will be coupled with high costs and will

[39] Commission Staff Working Paper, Ageing well in the Information Society. An i2010 Initiative Action Plan on Information and Communication Technologies and Ageing, SEC(2007)811, http://ec.europa.eu/information_society/activities/einclusion/docs/ageing/staff_working_paper_ageing.pdf

[40] ICT for Ageing Well in the Information Society (COM(2007)332) is na action plan aimed at raising awareness of the potentials of ICT for older age, eliminating market barriers for technology uptake and promoting research and innovation in developing and testing technologies aimed at the ageing users. These technologies comprise both the design of mainstream technologies to suit the needs of th elderly and the accessibility and affordability of assistive technologies.

hinder the reliability and stability of ICT for ageing well. Under this policy option, the removal of market barriers also fails. This leads to persistent marginalization of large segments of the elderly population from the information society, with the ensuing social costs and the loss of the opportunities for economic growth and new jobs that a vibrant new mainstreamed market for ageing well services and products would produce given the already sizable dimension of the affected population, which is deemed to steadily keep growing in the future decades.

Option B: If activities envisaged by current policy measures are continued and implemented they are likely to further stimulate and steer the emerging awareness of business opportunities by industry and the growing mobilisation of associations and initiatives by elderly people themselves in this area. Under this scenario it is reasonable to expect increasingly competitive provision of ICT tools and services for ageing well and the mainstreaming of design principles aimed at satisfying final users. In the short to medium term, however, until this new industry fully matures the products and services will still remain out of reach for the most disadvantaged groups both for reasons of targeting, affordability and usability. Further exclusion will arise. In particular, market solutions for ageing well at home, at work and in community life will only address older people with higher socio-economic status and education. Without organically addressing existing legal and technical barriers for ICT tools and services for ageing well, economies of scale and mainstreaming will not be such to drive prices down quickly and improve usability for those with less financial possibilities and skills. In general still a majority of older people will never become users of ICT and, without inclusive ICT tools and services, they will become more socially excluded.

Option C: Socially excluded elderly people are clearly addressed in policy actions aimed at raising awareness and consensus building, as well as in measures to remove technical barriers and promote uptake. A stronger stimulus will come from realising the opportunities that the market for 'ageing well' will bring over time and from the benefits that older people will receive from digital inclusion. Greater attention paid to the contribution of informal carers and community support for service delivery can further increase chances of success in this area. Where multiple disadvantages are an obstacle to the digital inclusion of weaker users, awareness campaign and support to intermediaries can facilitate policies for ICT for inclusion. The Action Plan on "ageing well in the information society"[41]explains that further exploration of opportunities would be needed in particular in the area of active ageing at work. Therefore, by building on the action plan, further action are recommended in these areas and synergies will have to be sought with other e-Inclusion policies such as digital literacy and e-accessibility, which brings the whole of "ICT for ageing well" into a comprehensive approach. Specifically a coherent approach should also rely on initiatives in the field of research by seeking the rapid adoption of the co-Decision on support to the joint research programme on ICT for independent living[42]. This option also envisages the support to innovation platforms for ICT for ageing aimed at establishing guidance for removing legal and technical barriers in ICT tools and services for this target group. A European award scheme on smart homes and independent living applications; and exchange of experiences,

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41 http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0332en01.pdf
http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0329en01.pdf

42 Proposal for a Decision of the European Parliament and of the Council on the participation by the Community in a research and development programme aimed at enhancing the quality of life of older people through the use of new Information and Communication Technologies (ICT), undertaken by several Member States COM/2007/0329 final - COD 2007/0116

networking and recommendations on regional activities on ICT and ageing, involving the Committee of the Regions and stakeholders will be launched. As already announced in the action plan a more specific agenda on ICT and active ageing in the work-situation will be developed during 2008. For older people, health conditions are an essential aspect enabling contribution of individuals to society. Quality improvements in healthcare brought about by ICT can and should be shared across all segments on society. The choice of this policy option will therefore create the preconditions for affordability and accessibility of e-health applications in future.

The major economic and social impacts in pursuing this option through the proposed European e-Inclusion Initiative are expected from the fact of addressing the challenge of ageing in the information society in the context of other measures referred below. These latter ones will be aimed at pursuing the right policy and business environment conducive to inclusive effects, such as by strengthening efforts to increase accessibility of ICT tools and services, digital competences of older people, and enabling their participation by fostering affordable access to technologies and information networks (especially in rural areas) and encouraging the inclusive provision of government services.

Geographical digital divides

Option A: Under this option, private telecommunications operators keep focusing investments mostly in the richer urban areas. Public support measures for the under-served areas progress only slowly. Broadband access cost and speed divides continue to increase, limiting business competitiveness in these areas and affecting quality of life for their citizens, due to limited or no access to new public and private digital services enjoyed by those living in other regions. People living in under-served areas with limited technical means of access and no quality access at home, due to lack of coverage or high costs, are likely to stop using ICT as quality of use is poor and no real benefits are derived with detrimental effects on employability and economic convergence of geographically disadvantaged areas.

Option B: Thanks to new wireless technologies and significant investment efforts often undertaken by regional and local governments or smaller private start-ups, broadband access is spreading to under-served areas in many European regions. Under this option, further technological improvements, improved radio spectrum management, and the application of principles based on universal service at EU level, are seen to accelerate broadband access deployment to reach most of the population in under-served areas. However, weak coordination with demand side measures, especially those addressing the digital skills of groups at risk, limits the potential uptake of new broadband services. Rural and remote areas often host a much higher percentage of older people, which are and may remain cut off from digital opportunities. Similarly, lack of good digital connectivity, i.e. broadband, might preclude active participation in the economy and quality jobs for many working age individuals. The lack of coordination and synergies between policies addressing ageing, rural and regional development, broadband penetration and access further exacerbates the problem.

Option C: Effective coordination of demand and supply measures across different areas and levels of government can increase the chances of succeeding in bringing broadband access to most of the population in under-served areas and achieving higher take up. FP7 and CIP support to new services such as telemedicine, eLearning and tele-working, but also IP-based telephony and others, which are much needed and appreciated by people living in rural and remote areas, especially younger and older ones, can help achieve critical mass. Synergies

with awareness and digital literacy policies reinforce the possibility that this opportunity is seized by the targeted groups. Positive impacts will also result from enhancing synergies with e-Government inclusive services and regional players and from support in the CIP for a proposed survey on funding for information society projects by EU Rural Development and Regional Policy programmes, also providing input for new orientations in 2007-2013. Finally exchange of best practices will also be enhanced with the launch of a new web platform on regional initiatives to promote the information society. The provision of inclusive services and applications, such as accessible e-Government, e-Health and social care services targeting disadvantaged geographical areas and groups is also expected to generate a positive feedback on the demand for broadband networks while creating the conditions for increased economic viability in market niches that were not naturally the first target for market providers of broadband services. Therefore, here too a coherent, integrated approach will be most effective.

Digital literacy and competences

Option A: In this option, education and training initiatives being left mostly to the market and to the local level of intervention will fail to produce enough e-Skilled and digitally literate people. Large gaps therefore remain in e-Skills demand/supply, affecting negatively the innovativeness and competitiveness of the economy. Low digital literacy and competences also contribute to the persistent digital exclusion of large sectors of society not just disadvantaged groups.

Option B: Current technological trends such as the increasing diffusion broadband access and the emerging interest and use of social media especially among younger people and other factors, are increasing the awareness of the importance to acquire different levels of digital skills. In this option, additional targeted efforts, the setting of standards and other measures such as those envisaged by the recent policies on e-Skills should contribute to increasing digital literacy and having e-Skills supply better matching demand. Additional potential is missed, however, because needs and conditions of teenagers and young adults who are low-performing in education, low-skilled workers, retired people and the unemployed are poorly considered when developing actions and tools to increase digital literacy and competences as these are mostly targeted to those in employment. Digital literacy training programs are mostly on standardised basic operational skills and are not sufficient to ensure more effective use of ICT. They are seldom linked to local level policies leveraging social support and peer learning. Lack of coordination with policies on ageing, forego possible maximisation of impact. Selective immigration of e-Skilled workers is also hindered by inadequate consideration for cultural diversity in public services.

Option C: Better targeted actions and mechanisms to stimulate the spread of innovative tools including web 2.0 in locally embedded policies will support informal peer learning, re-engaging in education, or deprived community building. These actions can also support improvement in digital literacy among disadvantaged young people and other disadvantaged groups. Coordination and synergies with inclusive e-Government policies can lead to greater availability and access to relevant public services especially designed for socially excluded groups, and thus further contributing to motivate individuals to improve their skills by participating to digital literacy programmes. Enhanced e-Skills in turn open up new job opportunities for disadvantaged youth, lone parents, and will enable active ageing at work, driving demand for broadband access in rural and remote areas. This will also be a result of coordination between different policies areas. One of these efforts will also be pursued

through actions within the European Year for combating poverty and social exclusion. Tailoring e-Skills and digital literacy to the different groups at risk and with a comprehensive view on exclusion challenges (including gender discrimination in disadvantaged contexts) will also increase the impact of practices in this area and will produce positive feedback in the diffusion and uptake of inclusive information society tools and services, with social and economic benefits. Empowering social intermediaries through e-Skills will also be key to the delivery of inclusive effects on final target groups.

Cultural diversity

Option A: This option largely reflects the current state of the art in this area across most of Europe, and would reproduce a situation where cultural diversity in the digital world does not attract enough public and private investment to pull down existing barriers. Linguistic and other cultural factors hamper the take up of services which might make intra-EU mobility easier; they fragment the markets for digital content and services produced in Europe. The integration of third-country nationals is also negatively affected.

Option B: Initial studies on the potential of ICT for the promotion of cultural diversity and the provisions on social integration and cultural diversity under CIP-ICT PSP programme may at least raise awareness on the topic in the public sector and underline the potential market opportunities for the private sector. Multilingual services, digital content originated locally, products based on European cultural heritage and values could be increasingly promoted and produced. Greater participation in the European information society of immigrants and ethnic minorities would be made easier by such changes and enhance their economic and social participation, integration, creativity and entrepreneurship.

Option C: Supporting the assessment of user needs in priority public services can lead to addressing cultural diversity with multi-language or visual information and adapted content. In connection with support to digital literacy this may stimulate Member States' policies to facilitate immigrants' integration. Joined up services improve the delivery of services to immigrants and disadvantaged ethnic minorities groups. Overall, wider digital competences, multi-channel delivery strategies and multi-language availability increase uptake of online public services by all groups. Naturally this would be possible as a result of coordination and integration across policy areas. Attention to cultural diversity when designing, and delivering information society tools and services to address the several challenges of digital exclusion can foster higher participation by groups at risk of exclusion due to their cultural background and language skills. A comprehensive approach for the information society to capitalise on diversity might entail positive impacts in participatory terms to public life as well as might forster creativity and economic dynamism[43].

Inclusive e-Government

Option A: In this option, accessibility and usability barriers, along with poorly relevant content continue to discourage users from accessing online government services. Low uptake of e-Government services creates economic damage and entails a loss of opportunities to deliver better quality and more efficient services to the population. Efficiency saving for public administration are entirely foregone, which in turn means that previous investments of

[43] See extensive literature by R. Florida, 2006, 2007 www.creativeclass.org

public money for ICT enabled services (as much as 36 billion in 2005 according to eGEP[44] estimates) and the greater number of services made available online will remain only a cost with no or very limited return on investment if take up of e-Government services remains at current level. Eventually pressure based on value for money will lead to shutting down projects and reduction or elimination of funding. This could mark the demise of e-Government as a policy domain and put a stop to innovation in public administrations. If this is the case, public expenditure on ICT will decrease while depressing output of the ICT industry. Similarly, lower productivity improvements will determine a negative impact on Europe's GDP.

Option B: Unsatisfactory uptake of e-Government services in many countries has already led to focus more attention on users' priorities and needs and to improve the design and accessibility of online services. This option should stimulate the continuation of this process and, thanks to increased awareness and to the actions envisaged for instance by the i2010 e-Government action plan, more efforts will be made to overcome existing barriers both on the users' and on the supplier's side. Moderate increase in the take up of e-Government services can be expected and might be sufficient to defend the business case for continuing the investment of public funds for ICT enabled services. This, however, will occur in a very diverse way among the different Member States and late comers will further fall behind.

Option C : Fostering synergies and stimulating pilots in inclusive public services can help spur the growth of accessible products and services, of digital literacy and even of broadband access in weak areas. Ever more accessible and better targeted digital public services contribute to motivate digital literacy and uptake among disadvantaged groups. This increases the uptake of e-Government services or the indirect delivery of benefits through frontline staff and intermediaries by disadvantaged and/or culturally diverse groups. Under this scenario of growing direct or intermediated use of online public services, increase in online transaction and digital processing of files, produce efficiency and productivity gains for the public sector that have a positive impact on GDP and provide strong justification for past and current investments of public funds and for continuation in the future. This results in a boost to ICT expenditure by the public sector, thus increasing the output of the ICT industry, which in turn impacts positively on GDP and creates new jobs. The implementation of the recommendation on e-Health interoperability will also provide for a better integration of e-Health systems within countries and across Europe resulting in better services for users and more efficient delivery systems for providers.

By conceiving e-Government services to address multiple forms of social exclusion and by adopting a comprehensive approach entailing the overall dimensions of e-Inclusion such as digital literacy, new ways of "learning-by-doing" through the use of e-Government services, the coupling of these services with access affordability and availability, might unchain the necessary conditions for the largest uptake of on-line public services and might constitute a substantial lever for commercial services in areas and groups formerly excluded from their enjoyment.

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[44] See e-Government Economics Project (eGEP), Economic Model Final Version, 31 May 2006 (http://217.59.60.50/eGEP/Static/Contents/final/D.3.3_Economic_Model_Final_Version.pdf).The hypothesis and technicalities behind this model and estimation can be found in e-Government Economics Project (eGEP), Compendium to the Economic Model, 25 March 2006 (http://217.59.60.50/eGEP/Static/Contents/final/Economic_Model_Compendium.pdf).

e-Accessibility

The need for a revision of the e-Accessibility situation was foreseen in the 2005 e-Accessibility Communication[45]. e-Accessibility concerns arise when the content, functions or other features of ICT products and services pose problems of access and usage for some persons, such as people with disabilities or older people. It has relevance in many technology domains and affects a wide range of slight or severe impairments.

E-Accessibility solutions refer to 'mainstream' technologies offering accessibility features from the design phase and 'assistive' solutions whereby accessibility features 'add-ons' to the mainstream products and services. For reasons of economic efficiency and non-discriminatory treatment, the priority must be to ensure that mainstreaming of e-Accessibility is achieved wherever possible.

e-Accessibility embedded in ICT products and services help addressing the daily challenges that the many users with visual, hearing, speech, mobility and cognitive impairments face in using the technologies and services of the information society.

At EU level, there are several pieces of EU legislation that affect e-Accessibility., such as the Electronic Communications Framework, the terminal equipment Directive, the 2004 public procurement Directives, the Directive on equal treatment in employment, as well as links in the e-commerce, copyright and audiovisual and media services Directives (a detailed analysis of e-Accessibility requirements in these directives is in annex 5).

EU instruments for research and innovation in CIP and FP7 can also be mobilised to ensure the necessary economies of scale and risk sharing to put in place technologies for e-Accessibility.

As shown in annexes and as supported by the public consultation (annex 1), market dynamics and attempts to improve implementation of existing legislation fail to ensure e-Accessibility for a large number of users in need of accessible ICT tools and services to enjoy the benefits of the information society.

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[45] *A follow-up that focuses on the e-Accessibility situation will be made two years after the publication of this Communication. …the Commission may consider additional measures, including new legislation if deemed necessary. This e-Accessibility work will in turn contribute to the already announced 2008 European Initiative on e-Inclusion*

Exhibit 26: Estimated user demand for accessible ICT products, services and assistive technologies among the EU25 50+ population (in Mio)

Indicator of potential market size		Demand potential in Mio			
Indicator for need	**Degree of impairment**	**2005**	**2010**	**2020**	**2050**
Vision problems	slight/ moderate	43.1	46.3	53.1	59.1
	severe	19.1	20.5	23.5	26.2
Hearing problems	slight/ moderate	41.4	44.4	51.0	56.7
	severe	8.0	8.5	9.8	10.9
Dexterity problems	slight/ moderate	30.2	32.5	37.2	41.4
	severe	15.9	17.1	19.6	21.8
More than one of these	slight/ moderate	68.5	73.5	84.3	93.7
	severe	33.4	35.9	41.2	45.8

Source: Own calculation demographic data available from SENIORWATCH 2002 and demographic projections from Eurostat 2005

From Study "The Demographic Change – Impacts of New Technologies and Information Society" http://ec.europa.eu/employment_social/social_situation/studies_en.htm

Annex 6 provides for a detailed preliminary analysis of the e-Accessibility policy options that are summarised below:

Option A: Continuing the status quo in e-Accessibility will not be conducive to effective results for users. It will not deliver on e-Inclusion targets (e.g. on web-accessibility or on accessible ICT tools and services). It will frustrate attempts for the ICT industry to innovate. If not corrected, the situation will endanger the internal market for accessible ICT tools and services and will damage the competitiveness of European industry in this field, since other regions are comparatively more advanced in progressing on e-Accessibility. This will have negative consequences in terms of market leadership. This situation further exacerbates the exclusion of substantial parts of user categories, such as the disabled and the increasingly ageing society, with negative consequences in terms of social integration, equal treatment and overall economic performance.

Option B: By carrying over the current efforts of promoting e-Accessibility through specific stakeholder engagement and attempts to enhance coordination of Member States policies for e-Accessibility, this policy option delivers some positive results for both users and businesses. Research efforts (in FP7) provide the necessary economic incentives for companies to investigate technological solutions for e-Accessibility. Similarly, the limited funding of trial projects (in CIP) stimulates the realisation of value chains for e-Accessibility and contributes to eliminate market fragmentation for the uptake of specific technologies. However, on other grounds, despite lengthy user-industry-institutional discussions in specific areas, such as in "total conversation" and accessible digital television, there has not been sufficient progress. For example current solutions for text telephony often do not allow deaf and hard-of-hearing persons to call across Member States evidently manifesting failure in Member States coordination and the need for a European dimension. Actors in the field refer to lack of regulatory incentives and legal coherence in this domain as one of the major causes for delaying commercial and practical solutions. Therefore ongoing efforts, by missing out on

their integration and potentially larger impacts, only partially benefit final users and do not provide sufficient business case for industry.

Option C: By suggesting for the Commission to step up support to e-Accessiblity innovation (and continue research) as well as to explore legislative initiatives on e-Accessibility beyond the review of the regulatory package for electronic communications, this policy option pursues a more systemic strategy to tackle the challenge (see also annex 6). Notably, legal certainty based on horizontal legislation on e-Accessibility at the EU level will enhance the coordination of Member States actions and policies in the field with positive effects in terms of legal certainty. Further stakeholder engagement and non-regulatory support measures (in research, innovation) will create the necessary business incentives to "innovate for e-Accessibility" by making ICT tools and services designed around the needs of weaker users with a larger potential of uptake and hence greater business opportunities, also in mainstream markets. By so doing, benefits in terms of digital inclusion and opportunities to actively participate in the economy and society will be provided to users. Not only specific categories will benefit from e-Accessible solutions but also society overall given the higher degree of usability of equipment, software and services notably by pursuing mainstreaming of accessible technologies (see also annex 6). This in turn will deliver substantial positive benefits for the economy overall given the largest inclusion potentials of a comprehensive strategy for e-Accessibility and the positive interaction of measures in this field together with policy measures in the other "Riga" areas.

4.2. Comparing the options

This paragraph presents a mostly qualitative assessment of the positive and negative impacts of the three options. As discussed earlier, higher impacts are expected from coordination and synergies of several actions joined in countering risks and seizing opportunities. Therefore, the preferred option is option C. By activating policies with a greater degree of synergy, and amplifying ground initiatives at Member States, local and stakeholder level, policies under option C will have the ability to foster positive interactions among influencing factors of e-Inclusion and to unleash the potential for positive multiplier effects.

Policies under option C also do not go beyond what is necessary to achieve the desired objectives. In all the areas of e-Inclusion as stated in the Riga Ministerial Declaration, option C recommends to enhance synergy and coherence of existing actions at all level, to make them known to policy-makers and to connect the different aspects of e-Inclusion so as to achieve larger impact. Option C recommends to do so mainly using a set of instruments that are already in place at EU, national and stakeholder level, such as increasing awareness of policy mainstreaming, enhancing reporting and monitoring mechanisms, fostering research and innovation in these areas, activating local authorities and stakeholders.

The financing sources for such actions will come from already approved programmes and funding for FP7 and CIP and they do not imply ad hoc extra-spending with respect to already allocated budget. No significant burden on any players are expected as a result of policy antecedents and of the commitments already obtained from key stakeholders.

After an analysis of the nature, depth and dimension of the market failure in the domain of e-Accessibility (see annexes 5 and 6), and after considering that neither market dynamics nor simple policy coordination are sufficient to achieve e-Accessibility, option C recommends exploring legislative measures within the e-Inclusion initiative and provides for a preliminary

assessment of those. An extended impact assessment will be required when legislative measures will be proposed by the Commission.

Table 4 overleaf provides a synthesis of the discussion presented in the pervious paragraphs and compare the various options. It includes the net contribution (resulting from the assessment of positive and negative impacts) and also the evaluation of burden imposed on affected players. The notation used for the scores is explained as follows:

- No impact at all= Nil;
- Contribution to policy target = (+) repeated from 1 to 3 (1= moderate; 2 = medium; 3= high)
- Imposition of new burden = (-) repeated from 1 to 3 (1= moderate; 2 = medium; 3= high)
- If no new burden is imposed this is valued with only 1 (+) sign

The summary scoring in table 4 has been produced through a qualitative aggregation of the impacts considered for each one of the components of Option C and presented in table 5, following table 4

Concerning table 5 please note that: ***for each areas, for reasons of space, the impacts are formulated in a simplified fashion in terms of the actual achievement of the desired objective to which policies contribute. Each cell, however, should be read as indicating a stronger or weaker contribution to the achievement of the desired objectives. We raise no claim to the direct and non mediated link between the options and achievement of such objectives***

Table 4: Comparing the options: summary table

Options / **Impacts** / **Riga areas**	**Option A (benchmark)**	**Option B**	**Option C**
Aggregate Impact	**Scores**		
1. Net contribution to improve targeted efforts at reducing risks of exclusion and/or leveraging market opportunities	**Nil**	**(+)**	**(+++)**
2. Contribution to synergies, coordination and mainstreaming	**Nil**	**Nil**	**(+++)**
3. Improved evidence base and monitoring	**Nil**	**(+)**	**(+++)**

4. Burden on EU DGs (impact assessment)	**(+)**	**(+)**	**(-)**
5. Burden on Member States (OMC, NAPs)	**(+)**	**(+)**	**(-)**
Net results	**2**	**4**	**7**

Table 5: Comparing the options: areas table

Options / Impacts / Riga areas	Option A (benchmark)	Option B	Option C
Older workers and elderly people	ICT for 'ageing well' remain a niche market bottom up policies no burden on any player	(+++) ICT for 'ageing well' market develop (--) in the short term the more socially excluded elderly people are left behind (-) extract costs of coordination and monitoring	(+++) ICT for 'ageing well' market develop (ICT products & services, independent living, care, health markets) (++) Benefits of 'ageing well' services and products extended also to socially excluded elderly people who will not become users of ICT; productivity benefits of e-enabling ageing workers (see USA report) (-) initial training and set up cost to eEnable front line staff and intermediaries (-) extract costs of coordination and monitoring
Geo digital divides	Some rural and secluded areas especially in new and/or less digitally connected Member States remain with no broadband coverage no burden on any player	(++) Broadband access in under-served areas increase; (-) Take up remains weak for demand failures (-) extract costs of coordination and monitoring	(++) Broadband access in under-served areas increase (++) uptake of broadband services like telemedicine, eLearning and tele-working. (-) extract costs of coordination and monitoring
Digital literacy and competences	low level of digital literacy decrease economy competitiveness and innovativeness socially disadvantaged groups further excluded bottom up policies no burden on any player	(++) increase in diffusion of basic operational e-Skills (++) Moderate Human Capital effect on the economy (-) more advanced competences are not addressed (-) groups at risks not sufficiently reached (-) extract costs of coordination and monitoring	(++) basic digital literacy and skills widely spread also among disadvantaged young people and other vulnerable groups; (++) more advanced competence addressed (+++.) stronger Human Capital effect on the economy (--) Initial set up cost of local policies of social support (local eChampion, peer-learning, front line staff) (-) extract costs of coordination and monitoring *Continued*

Options / Impacts / Riga Areas	Option A	Option B	Option C
Cultural diversity	limited development of pan-European information space and digital content market no contribution to immigrant integration bottom up policies no burden on any player	(+) Increased awareness (+) emerging digital content and multilingual services market start to ease third-country nationals' participation in the European information society (-) extract costs of coordination and monitoring	(+++) Pan European information space and digital content market develop (+++) combined effect of digital literacy, multi-channel delivery and multi-language availability increase uptake of online (priority) public services by all groups. (--) Initial set up cost of multi-language services (-) extract costs of coordination and monitoring
Inclusive e-Government	take up of e-Government services remain low ICT investments by the public sector decrease and negatively impact the ICT industry and GDP bottom up policies no burden on any player	(++) moderate increase in take up of e-Government services (++) ICT investments of public sector remain constant with no negative impact on ICT industry and GDP (+) little increase in public sector efficiency and productivity gains ensure lower eGEP economic model scenario of GDP growth (see par. 4.1) (--) Those groups at risk who are mostly in need of inclusive e-Government services are not yet adequately targeted and reached (-) extract costs of coordination and monitoring	(+++) considerable increase in take up of e-Government services (++) ICT investments of public sector increase boosting ICT industry and indirectly GDP (++) more substantial increase in public sector efficiency and productivity gains ensure higher eGEP economic model scenario of GDP growth (see par. 4.1) (++) Those groups at risk who are mostly in need of inclusive e-Government services are better targeted and start benefiting directly as users or indirectly through ICT enabled intermediation and multi-channel delivery (-) initial training and set up cost to eEnable front line staff and intermediaries (--) initial training and set up cost for ICT multichannel delivery (-) extract costs of coordination and monitoring
e-Accessibility	Industry suffers increasing costs to comply with fragmented regulation	(+) voluntary agreements only on *niche* parts of the market for accessible ICT	(+) Enhanced competition for accessible products (-) some costs for industry

	Users suffer for not accessing the information society	(=) Businesses will find limited incentives to innovate in very specific areas (-) Costs to comply with different national laws (+) Users will benefit from selective efforts	compliance (+) Industry benefits in terms of innovation and leadership (++) users will enjoy ICT that is accessible from the design phase at lower costs

4.3. e-Inclusion policy impacts on quality of life and the environment

There are two broad ways in which a more inclusive information society can impact on the environment:

– through the application of ICT to environmental problems and

– as an indirect consequence of their economic or social application.

In terms of their application to environmental problems, ICT is already demonstrating that it can have positive effects. For example, in the field of intelligent homes which are not only useful for increasing the autonomy of older people or people with disabilities, but also to test ICT technologies for energy saving, for example in the use of sensors for tuning heating and ventilation systems, and energy consumption. Public services based on ICT for environmental modelling, monitoring and forecasting are already bringing real social and economic benefits[46].

The impact of ICT introduction on the environment as a by-product of its economic or social application is less well understood and much of the evidence is ambiguous[47]. Inclusive information society policies will rely on ICT being a tool for empowering users. This would also have the consequence that more ICT will be needed and diffused with consequent environmental footprint. This will be exacerbated especially if different inclusive services will have to be accessed through different platforms and specific tools. On the other hand, convergence and more e-accessible technologies can reduce the amount of personal ICT equipment needed to enjoy the services, thus reducing the ecological footprint.

In some circumstances, inclusive ICT applications have been shown to result in environmental benefits by reducing the need to travel, in others, substitution effects have outweighed the immediate benefits. For example, a UK study concluded that e-shopping could reduce car-based shopping travel by 10%, whereas a similar Dutch study found that vehicle miles would increase as van deliveries replaced cycle and foot trips in densely populated urban areas[48]. Well managed e-work schemes have been demonstrated to provide important sustainability benefits, including a reduced need for office space[49], although in some cases longer journeys are made in place of more frequent shorter trips.

46 For example GALILEO, GMES and the "Improving Risk Management" Strategic Objective of the FP6 ICT Work Programme

47 WWF 2002 Sustainability at the speed of light; DG Enterprise 2003 ibid; Digital Europe 2001 Making the Net Work: Steps towards a sustainable networked world. Forum for the Future.

48 Alakeson et al (2003) Making the Net Work: Sustainable Development in a Digital Society (findings of the EU Digital Europe Project)

49 www.sustel.org

There are concerns that the increasing energy consumption accompanying more widespread uses of ICT might outweigh any environmental benefits gained[50] although again the evidence here is ambiguous. The European Union has been taking important measures to reduce some of the resource implications of the information society with initiatives directed at reducing energy consumption, at the recycling of electrical components and at reducing the use of lead solders[51]. An inclusive information society may also have a significant impact on the reduction of resource consumption through the dematerialisation of production, breaking the link between economic growth and resource demand, and through miniaturisation, again reducing resource requirements[52].

The introduction of e-Accessibility and practices such as "design for all" can also produce positive effects in environmental terms since they will result in simpler technologies and services used by a larger customer base including the older people and disabled, but also based on standardised, simpler platforms and tools which will be easier to re-configure for add-ons and retrofit.

ICT also enables a less resource-intensive production, which in turn reduces the environmental impact of economic activities in a number of ways. Miniaturisation of devices reduces the resources needed for manufacture and distribution. Innovative transport planning systems designed to provide e-accessibility for users can help to ease traffic congestion and optimise transport capacity.

In summary, there is a theoretical basis for believing that the use of ICT can have many positive environmental benefits, and at the strategic level it has been proposed that ICT, the knowledge economy, and sustainable development are complementary drivers. At the same time, further research needs being pursued in:

- maximising the social benefits of e-Inclusion with the environmental benefits of deploying ICT that reduces its ecological footprint. Particular attention in this regard should be devoted to improving environmental efficiency using innovative technologies;

- exploiting the potential environmental benefits from e-Accessibility by developing technologies that are convergent, user-friendly, easily re-configurable and can universally access a multitude of services, thus reducing the current number of different devices often tailored to access one specific service.

4.4. Tangible impacts if disparities are halved: a scenario

Below a ***scenario*** of potential tangible economic impacts is presented (full analysis, including sources of inspiration and data, can be found in Annex 4), whose quantification is based on very preliminary ***estimates*** that, given the lack of a dynamic and consolidated econometric model applicable to the different facets of e-Inclusion, are the result of ***static*** calculations based on reasonable and theory informed ***assumptions***. The emphasis added on the four terms are not casual and hints to the specifications and limitations of the following data explained below.

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50 Huber and Mills 2000

51 WEEE Directive 2002/96/EC on disposal of waste electrical and electronic goods

52 See for example DG Enterprise 2003 A Sustainable e-Europe: Can ICT create economic, social and environmental value? SustainIT on eco-efficiency (p.7)

First, the tangible economic gains estimated are considered likely under the scenario that ***disparities in ICT access and use are halved in the next five years as a results of both physiological processes and of successful stepped up policy efforts on the side of all involved players.*** This scenario does not claim that the related potential gains can materialise simply as a result of implementing the e-Inclusion Communication along the lines of preferred Option C. For such change to occur various initiatives and efforts by many different players (national, regional and local governments, industry, third sector and other civil society groups in 27 different countries) would have to be undertaken and, interacting with each other in an integrated fashion, can lead to a dynamic multiplier effect. Our claim is simply that Option C can contribute to catalyse, stimulate and integrated such extra efforts needed from all players, and certainly more than Option A and Option B.

As the analysis does not impute the potential benefits to Option C exclusively, it does not provide quantification of the related costs of measures envisaged under option C. Option C in itself entails no substantial costs on any of the possibly involved players, being based on mobilising measures and funding which is already available from existing programme.

Finally, the limitations of the quantitative estimates must be clearly spelled out as they are just a primer and will have to be further tested and backed, also as a result of the new initiatives proposed in chapter 5 in terms of research, monitoring and measurement. Given the anticipated lack of an econometric model applicable to the specificities of e-Inclusion, as well as the lack of granular and long enough data series to apply by analogy other existing models (i.e. those linking Human and Social Capital to economic growth), the limits are the following:

– The estimates are static, which implies: a) that they do not consider interaction and compounding effects; b) are calculated on aggregate for the next five years (2008-2012) as whole and not broken down in year by year figures. This caveat applies also to the specific use of the eGEP model of the economic impacts of eGovernment[53];

– Lacking the underlying causal logic of a sophisticated and consolidated model, which is usually tested by the statistic elaboration of data over a long enough number of years, the estimates are based on simple linear assumptions that are reasonable and informed by theory and some available case studies but cannot be fully illustrated and demonstrated at this stage;

– While being digitally excluded or included is a multi-facet phenomenon not reducible to internet usage, for quantification purposes data were used on those not using the internet as a proxy measure of the digitally excluded, since this is the unique dimension on which reliable and comparable statistics are available for all EU27;

– Data on internet usage did not, however, enable more detailed and differentiated set of assumption for which data were not available: a) percentages of individuals who have no or low formal education and are unemployed and do not use the Internet. This would allow to make better estimates about likelihood of conversion rates (lower for this group, a bit

[53] See e-Government Economics Project (eGEP), Economic Model Final Version, 31 May 2006 (http://82.187.13.175/eGEP/Static/Contents/final/D.3.3_Economic_Model_Final_Version.pdf). The hypothesis and technicalities behind this model and estimation can be found in e-Government Economics Project (eGEP), Compendium to the Economic Model, 25 March 2006 (http://82.187.13.175/eGEP/Static/Contents/final/Economic_Model_Compendium.pdf).

higher with those with medium and higher education who are unemployed and do not use the Internet, etc); b) percentage of those who are employed and do not use the Internet by level of education and by age (this also would enable better estimates on conversion rates); c) percentage of older people who do not use Internet by level of education and income;

– Hypotheses are not provided nor monetary evaluation is performed to evaluate extra productivity and quality of life (from higher income or more labour force participation) for older people because this might overlap with similar estimates made for the e-Accessibility issue and presented in Annex 4 (par. 10.4) and thus produce double counting (some of the older people might be the same of those with milder disabilities already considered earlier). Currently is not possible to disentangle such possible overlap and separately quantify different groups such as older people with mild and severe disabilities from older people without any form of disability.

The details on the quantification of the gains and the supporting evidence is presented in full in Annex 4. Below a synthesis of the three basic mechanisms through which such gain can result, provides the end outcomes of the calculation illustrated in details in Annex according to two scenarios.

(1) The "***Riga scenario***" refers to the fulfilment of the targets and commitments made by governments in the Riga Ministerial Declaration, namely halving ICT disparities in the next five years. The e-Inclusion initiative will be one of the measures contributing to these goals by stepping up efforts of all involved players. In this scenario, and despite the conservative assumptions made in annex 4, a good response from employability, efficiency gains and market transmission mechanism is expected and would earn a wide positive economic impact;

(2) The "***slow adoption scenario***" is based on slower structural adaptation and on more conservative and somewhat restrictive estimates on absorption by labour markets of the unemployed receiving ICT training, limited efficiency gains and limited impact on the ICT industry.

	Riga scenario	***Slow adoption Scenario***
(3)	**(I)** Becoming digitally included increases **Human Capital**[54] and **Social Capital**[55], which: a) enables	

[54] The economic impact of Human Capital (by way of increasing employability and productivity) is widely demonstrated in the economic literature (see for instance the classic contribution by Robert J. Barro, "Human Capital and Growth", American Economic Review, May 2001, pp. 12-17). What is lacking from the perspective of e-Inclusion, a gap to be filled by future EU sponsored research and studies, is the integration of digital skills into Human Capital indexes.

[55] Social network theory has shown that individuals mobilise their networks to achieve sought outcomes, especially finding jobs. In a seminal article Mark Granovetter as early as 1973 showed how the more instrumental and 'weak ties' (that is acquaintances rather than relatives and close friends) are the most powerful ways of finding a job (M. Granovetter, The strength of weak ties, American Journal of Sociology 78(May 1973), pp. 1360-1380). Recently U.S. Department of Labour estimated that between 70 and 80% of jobs are found through networking (L. Borghans, B. Weel, and B. Weinberg, B., 'People People: Social Capital and the Labor-Market Outcomes of Underrepresented Groups'. NBER Working Paper No.11985, 2006). The way ICT contribute to boost such network is analysed, for instance, in D. Zinnbauer, *What can Social Capital and ICT do for Inclusion?*, Sevilla, European Commission, Directorate-General Joint Research Centre, Institute for Prospective Technological Studies, 2007.

some of the digitally excluded who are unemployed to find a job (new skills and new networks)[56]; b) enables some of the digitally excluded who are employed to improve their productivity which is reflected by increased earnings with the same employer or by getting a new better paid job[57]:	
• **€30 billion** from increased participation to the labour force of the currently unemployed who are digitally excluded (5 million get a job at an average income of € 11,000 per year); • **€9 billion** from increased productivity as a result of new digital skills acquired by those in employment (28 million increase their annual earnings by € 1,000)	• **€7,5 billion** from increased participation to the labour force of the currently unemployed who are digitally excluded (5 million get a job at an average income of € 11,000 per year); • **€4,5 billion** from increased productivity as a result of new digital skills acquired by those in employment (8,4 million increase their annual earnings by € 1,000)
(II) The increased number of digitally included citizens buying ICTs products and services boosts the ICT industry output, which has proven impact on GDP growth[58];	
• **€10 billion** of extra GDP growth resulting from the increase in the output of the ICT industry produced by 40 millions individual buying hardware/software and paying a broadband connection	• **€5 billion** of extra GDP growth resulting from the increase in the output of the ICT industry produced by 20 million individual buying hardware/software and paying a broadband connection
(III) More citizens that are digitally included translate in to increased take of eGovernment services resulting in efficiency and productivity gains[59]:	
• **€6,9 billion** of extra efficiency gains from transaction costs savings for public administrations as a results of increased take up of e-Government services • **€30 billion** of extra GDP growth additional to the €178 billions already estimated by the eGEP economic model as the impact of e-Government on economic growth	• **€3,7 billion** of extra efficiency gains from transaction costs savings for public administrations as a results of increased take up of e-Government services • **€15 billion** of extra GDP growth additional to the €178 billions already estimated by the eGEP economic model as the impact of e-Government on economic growth.

In conclusion, both scenarios are based on fairly conservative estimates. In their components, they refer to methodologies used and findings derived from previous exercises (see previous footnotes). These findings represent initial calculations based on static projections due to the current lack of econometric models suited for dynamic modelling of e-Inclusion and the lack

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56 A UK case study on the experience of the UK Online Centres, a public point for access and digital literacy programmes and support, has shown that a considerable numbers of the unemployed who used the centres and attended the courses eventually was able to get a job: Goodison T. et al, *ICT and Employability: A Case Study of Clients using UK online centres*, UK Department for Education and Skills, Research Report RR534, London, 2004.

57 This approach assuming that increased ICT skills, as for other type of market relevant skills, improve the productivity and earnings of the already employed is used in some case studies analysed in Annex 4 and in Annex 5.

58 The OECD 2003 Scoreboard, for instance, has showed that in OECD countries on average the increased output of the ICT industry directly contributes to the GDP formation: investments in ICT accounted for between 0.35 and 0.80 percentage points of growth in GDP over the period 1995-2001 (OECD "Science, Technology and Industry Scoreboard 2003- Towards a knowledge-based economy", 2003 (http://www1.oecd.org/publications/e-book/92-2003-04-1-7294/). See more references in Annex 4.

59 Backed by the analysis of the EU financed eGEP model referenced earlier and further analysed in Annex 4.

of granular data in the many areas of digital exclusion. While keeping in mind the methodological limits of this exercise, the total potential economic impact of measures aimed at realising the Riga targets is in the order of **€35 billion** to **€85 billion.**

The upper range refers to the scenario where ICT disparities are halved in the next five years if the Riga targets were met and all policy measures acted for their achievement. The lower range, refer to the more restrictive "slow adoption" scenario where only a limited advancement is made in reducing digital disparities (25% increase in ICT usage) and the economy more weakly transmits positive impacts on job creation and consumer demand.

5. MONITORING AND EVALUATION

5.1. Measuring achievement of outputs

The evaluation of the proposed policy measures will have to be pursued by targeting the two levels of output and outcome analysis. More specifically, output indicators (OP) will record the implementation of actions at a basic level of implementation and will deliver the immediate impact of undertaken policies. Outcome indicators (OC) will refer to the achievement of the general goal of e-Inclusion and will depict a wider picture.

– Table 12 summarises a number of output and outcome indicators that will be used for the e-Inclusion policy evaluation.

Table 6: output and outcome indicators

Objectives	Indicators	Source	Type
General objective	% decrease in the use gap between targeted groups and the average EU population	Riga Dash board	OC
Enable	% increase in the number of fully accessible public web site	CapGemini	OP
	% increase in accessibility of digital TV	Ad-hoc study	OP
	% decrease in the digital competence gap between targeted groups and the average EU population	Riga Dash board	OC
	% increase of broadband coverage of rural and sparsely populated areas	Riga Dash board	OC
Accelerate	% increase in the use of ICT enabled public services by the socially disadvantaged	Eurostat ad hoc households survey	OC
	% increase in the supply of products and services for 'ageing well'	Ad-hoc study	OP
	% increase in the supply of tele-health services	Ad-hoc study	OP
	# of research projects and network launched on digital empowerment in employment and social life for marginalised young people	Commission internal records	OP
Integrate	# of best practices in eInclusion exchange on the portal ePractice.eu	Commission internal records	OP
	# of stakeholder and practitioners joining the eInclusion innovation platform	Commission internal records	OP
	# of submission to the eInclusion best practice award	Commission internal records	OP
	# of awareness actions realised	Commission internal records	OP

5.2. Continuing Riga Dashboard

The latest i2010 annual report[60] included a first analysis on the progress towards the Riga targets and recognised that the Riga Declaration priorities are relevant at the EU level and the required policy efforts needed to reach the targets are substantial given the initial conditions.

This has been further confirmed in the first "Riga Dashboard" (set of indicators to track progress on the targets of the Riga Declaration), in preparation to the e-Inclusion 2008 initiative, part of which have been used in this IA (par. 1.2 and especially Annex 2)

The "Riga Dashboard" will continue to be produced on a yearly basis for tracking progress towards the Riga targets.

[60] http://ec.europa.eu/information_society/eeurope/i2010/annual_report/index_en.htm

From various studies surveyed for this IA and from the conceptual framework proposed earlier (par. 1.4), the focus of this benchmark should be:

- Access divide: based on a simple distinction between those who have access to ICT and those who do not;

- Usage Divide: depicting a situation where take up of ICT is relatively widespread, but where there is a division between those who wish to use ICT and those who do not;

- Divide stemming from the quality of use and the impact: indicating a situation where ICT have reached more or less a saturation point, but where there are differences in the opportunities and outcomes that can be realised by those who do have access to technology.

In this perspective, the framework proposes indicators measuring the diffusion and the uptake among various groups of individuals, with the aim of identifying PC and internet disparity indexes for household connectivity and individuals' access and usage of ICT. It would also consider access in terms of the supply side of e-inclusive public services and infrastructures. Finally, at the top of the e-Inclusion ladder there would be indicators measuring the impact of ICT on e-Inclusion and the quality of life. However, the availability of these impact indicators is scarcer, since they are more complex to measure. Some impact analysis and data is expected in 2008 in the framework of studies on the socio-economic impact of the information society.

Moreover, the annual e-government benchmarking will continue addressing user-centric features of public websites. A Eurobarometer survey on the citizens' perceptions of the information society will address e-Inclusion aspects. Finally, the Commission expects results from European market surveys on ICT and the elderly, and on the assistive technologies industry, with a view to define future policy orientations

5.3. Current knowledge gaps

Besides traditional benchmarking the sustained review of the literature presented in Annex 3 clearly suggests that currently the lack of empirical data, and aggregate statistics and benchmarking based on simplified paint-brush indicators, prevents considering in more depth the relations between broadly defined social inequalities and difference in usage of digital media, which together shape processes of exclusion and inclusion. Below gaps are identified from which the topics of a future research agenda can be derived, from both a methodological and substantive perspective.

– methodologically, since many aspects of Internet technology are unfamiliar to less sophisticated users who may be unable to answer relevant questions, work on question design is needed to improve data quality.

– data should be gathered using panel rather than cross-sectional methods to avoid problems of self-selection.

– moving to substantive issues, there is a gap of evidence about differences between indicators of access at work, home, or other locations, and especially about the extent to which members of less privileged groups rely either on workplace connections or on community settings to go online. This calls for further empirical research on this area

- little evidence is available on social-network processes that culminate in wider ICT use. Research is needed to correlate individuals' access and intensity of use with the number of their friends, relatives, or business contacts who are already online

- there is a lack of data on Internet dropouts. Research enhancing our understanding of the causes for stopping using ICT is important and needed.

- with respect to autonomy, the big question is how *where* one goes online affects *what* one does there.

- evidence and measurement on competences and skills is needed but it is also the hardest target. Observational approaches are effective, but their cost is prohibitive for large-scale data gathering. Proxies for variables in the domain of skills, and knowledge accumulation are needed, but the quest for these measures is complicated by the fact that the technology generates requirements for new skills or makes old ones obsolete as fast as researchers can validate their measures. If suitable measurement can be made, the next step is to understand the mechanisms that produce variations in skills and the consequences of such variation for persistence and productivity of Internet use.

- more research is needed to go beyond reasonable assumption and preliminary estimates, and empirically demonstrate the outcomes and impact that usage of ICT produces for individuals and actually for society as a whole.

5.4. Proposed new monitoring instruments

The last point in the previous paragraph calls for an improved understanding through the gathering of empirical evidence and the application to the e-Inclusion field of standard economic modelling on Human Capital, Social Capital, and other potential impacts. On the basis of this work an e-Inclusion Impact Measurement Framework should attempt to go beyond the focus of current benchmarking.

In light of this it is proposed that e-Inclusion measurement will be refined, notably to better evaluate impact of e-inclusion evolution and policy actions, including the economic impact.

6. CONCLUSIONS – THE PREFERRED OPTION

The IA has assessed a number of option ranging from maintaining the status quo (option A), carrying on separate activities as currently envisaged with no additional coordination or integration of efforts (option B) and enhancing synergies through a Common Integrated strategy for e-Inclusion. From the analysis, the preferred policy option is option C. If adopted in the context of the e-Inclusion Initiative, this option will deliver the largest positive impacts on:

(a) Users: a coherent framework for e-Inclusion will systematically address the root causes of digital exclusion in a comprehensive way. Since the various reasons of digital exclusion reinforce each other, a strategy addressing them systematically and consistently has more chances to deliver positive results and help reach the Riga targets for an inclusive information society. The intention of exploring a horizontal legislative approach to e-Accessibility would be to eliminate legal uncertainty and to constitute an incentive for suppliers to provide accessible and inclusive technologies and services more tailored to users needs and more affordable since accessibility will be embedded from the design phase. User representatives will be able to work with industry at an early stage of technology development on common roadmaps, reducing overall cost and uncertainty. By enabling a barrier-free information society (broadband availability, e-accessibility, digital literacy), many more excluded people will be enabled to participate in the information society. Targeted actions for specific groups at risk of exclusion will lead to more profound usage for greater benefits. Users will gain in terms of social inclusion and economic engagement by obtaining ICT means that will allow better integration in the work place and the enjoyment of social services such as health and care;

(b) Industry: an inclusive information society will deliver new market opportunities for industry given the increased user base, wider availability of broadband access, the development of innovative solutions for e-Accessibility and usability and the creation of new services targeted at people with specific needs such as disabled and elderly persons. The intention of exploring a horizontal legislative approach to e-Accessibility would be to create the conditions for a level-playing-field for business actors, enhance regulatory certainty, and expand the market for inclusive ICT. This in turn will allow industry to develop forward-looking roadmaps, with users, for research and innovation in innovative ICT using inclusive design concepts from the start. European research and deployment projects and will help to reduce innovation risks, share costs, and validate interoperability across Europe. The clear business opportunity focus of the proposed e-Inclusion strategy is intended to create new innovation and market opportunities and help European industrial leadership in the inclusive information society;

(c) Public authorities: coordination across EU, national and local levels will enhance the effectiveness of e-Inclusion policies by reinforcing activities in the field of policy learning, benchmarking and monitoring, throughout all e-Inclusion dimensions. The intention to explore a horizontal legislative approach for e-Accessibility is to eliminate the current regulatory

fragmentation and to enhance legal certainty across the different institutional levels for the benefit of industrial players, authorities and individuals. Public authorities will also benefit thanks to innovation processes that inclusive ICT will bring in delivering services to target groups. Interoperability will be a key element for the effective and seamless delivery of these services.

The policy implementation of this option will ***contribute to the realisation of common and systemic approach for e-Inclusion***, aiming at improved synergies across policy initiatives at EU and national levels and also relying on efforts to cluster business led initiatives, increase their visibility and ensure replication of successful ones. By doing so, the initiative is aimed at delivering so called "multiplier effects" necessary to increase positive impacts of ongoing actions at all level.

This policy option will also support the realisation of a more cohesive society. It will foster the introduction of innovative inclusive technologies and services and it will contribute to the sustainability of our economies. e-Inclusion has a substantial economic value for Europe. It is a key enabler for broad-based sustainable growth and it benefits society overall.

If all Riga targets were met, reaching the goals of a digitally included society could boost economic growth in Europe and increase Europe's GDP by an estimated **€85 billion** in the next five years. It will also represent a social and an economic opportunity for people currently at risk of exclusion.

Box 3: Policy recommendations from the i2010 e-Inclusion subgroup of Member States representatives (mandated by the i2010 High Level Group*)*

A. Seeing e-Inclusion as an economic opportunity besides a social necessity and mainstreaming e-Inclusion policies. Many of the Riga targets are best achieved if ICT for inclusion is an integral part of other mainstream policies, e.g. in education, innovation, transport, employment, etc. This would lead to greater impact and increased efficiency.

B. Gathering further economic evidence of the opportunities deriving from digital inclusion policies in terms of cost-savings in service provision, creating new jobs, creating new products and services.

C. Working with a wider range of stakeholders such as users, industry, local/regional authorities to enhance cooperation between users, industry and authorities.

D. Demonstrating European added value

ANNEXES

7. ANNEX 1: PROCEDURAL ISSUES AND BACKGROUND

7.1. Procedural issues

The proposed Communication on the e-Inclusion Strategy was part of the of the 2007 Commission Work-Programme[61]. A roadmap for impact assessment was presented in 2006 and policy options were advanced in line with the ones proposed in this impact assessment. Actions were foreseen in the 2007 Annual policy strategy where the Commission engaged to develop a "European Strategy on Information and Communication Technologies to promote social inclusion and independent living in an ageing society"[62].

The Communication does not involve actions requiring financial expenditures from the part of the Commission. Therefore, the impact assessment does not require an ex-ante evaluation.

This impact assessment suggests the continuation of current activities on e-Inclusion and encourages their increased coordination at EU and national levels. It suggests exploring legislative measures in the field of e-Accessibility. It justifies the market failure in accessibility. It defines the problem and explores possible options for solutions. It provides for a preliminary quantification of costs and benefits of introducing legislation. Therefore, it satisfies the proportionality principle of analysing immediate outcomes of the communication and providing supporting evidence to the statements made in the Communication.

Any decision on legislative measures following the proposed communication will be subject to an extended impact assessment of the measures therein.

Table 7: Procedural issues

Roadmap and SPP cycle	*Provided in 2006*
Link between IA and ex ante evaluation	*Not required*
Inter-service steering group	*A number of inter-service steering group meetings have been performed*
Stakeholder Consultation	*Launched, results expected (see next paragraphs)*
Use of external expertise	*External expertise was used during workshops and in support to the impact assessment of the proposed communication*

61 http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0629en01.pdf

62 http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0122en01.pdf

7.2. Compliance to the opinion of the Impact Assessment Board

The impact assessment board of the European Commission, in examining the quality of a previous version of the IA and its compliance with Commission impact assessment guidelines, issued an opinion which is summarised in the following recommendations:

– **A more focussed and concise report**, in line with the principle of proportionate analysis, and making clear which elements of the proposed initiative are to be assessed beyond the framework established by the Riga Declaration. The core of the IA has been shortened (see below).

> This recommendation has been fulfilled in chapter 2 through an improved definition of objectives from which the actions of the e-Inclusion Initiative as proposed in the Communication are derived.

– A better demonstration of the value added of the EU action.

Added value is demonstrated in section 1.6 and it is the logical result of section 1.7 containing a number of lessons learnt from past and ongoing policies for e-Inclusion.

– The content and differences between options

This IA also responds to this recommendations by clearly identify options in section 3 and ensuring to clearly compare options B and C against the benchmark option A, in line with the IA board's requests.

– **The further elaboration impacts. E**nvironmental and economic impacts should be considered for each different option, i.e. not just from an overall perspective.

The IA focuses on quantitative analyses which are possible at aggregate level. The lack of granular data, especially related to groups at risk of exclusion (often linked to geographical locations) has been one of the greatest constraint to monetise costs and benefits at option and action level. For example, potential benefits from broadband access in under-served areas could not be quantified for lack of granularity on available data (for instance no data are available on marginalised people with limited education not accessing the Internet in under-served areas or on unemployed individuals with no Internet access in such areas, etc.). Therefore, the given monetary quantifications are intended to provide an illustrative scenario of the potential achievable benefits. Similar observations hold for environmental impacts given the low granularity of available data.

Monetary quantifications refer to a scenario where all Riga targets are fully met. In light of the principle of proportionate analysis, the scope of this IA is limited to explicitly link the quantitative estimates to each action component aggregate impact (rather than quantitative estimations for each action component). As such, monetary quantifications do not refer to the realisation of specific actions contained in the policy option.

The IA clearly stated that the "full Riga" scenario can be realised as a result of both processes linked to internal dynamics and of stepped up efforts on the side of all involved players, of which the Commission is only one.

In this framework, the preferred Option C proposed by the Communication, would contribute to the realisation of such scenarios more than Option B, but in combination with many other factors. Monetised impacts as such are not exclusively imputed to the implementation of measures considered in Option C, but to a systemic change to which the measures considered in Option C will positively contribute. As stated earlier by itself Option C bear little significant costs, if any, on other players.

– **A shorter version of the IA in line with IA guidelines.** The initial draft IA presented a much longer core text including the in depth analysis of preliminary options for exploring Commission legislative initiatives in the field of e-Accessibility. This detailed part is now moved in two major annexes 5 and 6 so that the core text can better comply with the proportionate analysis required by impact assessment guidelines.

7.3. Ad Hoc Consultation

A public on-line consultation was launched on 11 June 2007 and will be closed on 15th August 2007. The preliminary results of the questionnaire are briefly summarised in the following box.

Box 4: Results from the on-line consultation on the e-Inclusion Strategy

Results from the on-line consultation on the e-Inclusion Strategy

The questionnaire was made up of 12 questions on the different areas referred to in the Riga Ministerial Declaration. 3 direct reminders were sent to over 2000 contacts. The questionnaire was also advertised by the Europa portal and the Information Society Newsroom service. At the end of the consultation the responses were 211. The majority of answers (65%) came from individuals (mainly concentrated in "old Europe" EU15). 35% of responses were from legal entities including NGOs representing users and industry, companies and research entities. The feedback on the following questions confirmed that:

– Limited progress has been recorded on e-Accessibility since the adoption of the 2005 Communication stressing the role of voluntary measures by the industry, with the highlighted risk of legal and market fragmentation (concerns respectively shared by 69% and 72% of respondents)

– The need to reinforce (81%) and revise (87%) current legislation as well as propose (72%) new legislation on e-Accessibility was strongly emphasised. The respondents also supported the need for accompanying instruments engaging stakeholders (such as the use of corporate social responsibility (68%), enhanced monitoring schemes (66%) and user-industry cooperation (61%). Also on web-accessibility, 53% of respondents suggested using mandatory standards that can be used in public procurement

– The overwhelming majority of respondents also stated that enhancing e-Accessibility would have very positive impacts on individuals (90,5%), European industry (82,5%) and society overall (92,1%)

– Digital literacy should be strengthened according to 90% of responses by fostering public private partnerships in (82%) and encouraging efforts to promote standard qualifications (75%)

– Older people are discouraged to take up on ICT tools and services because of existing market barriers (53%) of respondents and the need to increase awareness of ICT potentials among the older population as well as enhancing competencies, accessibility and access to technologies (ranging from 65% to 76%). The majority of respondents also signalled the

priority to adapt ICT to the needs of the older users

- The potentials from the use of ICT tools and services are increasingly seen as an integrating factor for marginalised youth to engage socially and economically (61% of respondents) and for ethnic minorities (74,6%). Linking the e-Inclusion dimension to policies for education, employment and immigration was selected respectively by (42,7%), (31,7%) and (30,2%) as a top priority

- The majority of respondents agreed (55,6%) and strongly agreed (15,9%) to recognise the potential of social web (web 2.0) as very high in terms of social inclusion, in so that services are better tailored to users and users engage better in the information society

- A strong plea was made to increase ICT competences in public service providers (84%)

- A strong claim was made for the need to increase mainstreaming of e-Inclusion across all policy-making (87% of respondents) while reinforcing international debate and exchange on e-Inclusion, promoting research and innovation activities and better coordinating local, national and EU levels

- Respondents also strongly encouraged the EU (87%) to foster dialogue on e-Inclusion across relevant stakeholders and support industry efforts through corporate social responsibility (75%)

- 23 replies were also sent in off-line mode from civil society representations and business entities/organisations (5). This feedback sent in the form of direct replies to the off-line versions of the questionnaire or in the form of position papers differed especially in terms of proposed options for e-Accessibility. Opinions ranged from supporting stronger legislative intervention (from the part of civil society organisations) to more reserved views voiced by the industry.

- The latter positions recognised that a common approach is needed at EU level given the current fragmentation of the e-Accessibility landscape in Europe due to diverging requirements at Member State level. However, feedback from some industrial entities expressed the invitation to pursue non-regulatory solutions or implementation procedures for potential regulatory solutions which would rely on self-certification of products and services, the use of functional requirements for e-Accessibility and the promotion of standards in collaboration with other major trading blocks such as the US.

The consultation process was also supported by using the potentials of social web (web 2.0). An interactive blog (http://www.ipolicy.eu) was set up featuring a number of lead debates in the areas of e-Accessibility, ICT for excluded youth and immigration, ICT for the elderly. Themes reported an average good response rate (by comparison with standard blog-sites) and interventions from experts in the area confirmed the potentials of ICT for social inclusion as well as the need to act from the EU in the area of e-Accessibility.

7.4. Methodology and studies supporting the proposed policy measures

This IA has used the eGEP[63] economic model developed for assessing impacts of e-Government on GDP growth. The model has been used to estimate the extra GDP growth that could be estimated assuming that the disparities in ICT access and use were halved in the next five years (see par. 4.4 and Annex 4).

[63] See projects results at www.rso.it/egep

A number of studies and consultations have been carried out over the recent years marking the definition of the e-Inclusion strategy. Increasingly accumulated evidence has supported a more holistic approach towards inclusion and have identified the interrelation across the several areas of exclusion from the information society as mutually reinforcing and hence to be addressed in synergistic and coherent ways.

The following table provide a selective list of such studies.

Table 8: Selective list of relevant EU financed studies in support of the e-Inclusion strategy

N.	Study	Main content
1	**2002** SeniorWatch[64]	Assessing the needs for inclusive services and technologies for the ageing society and disabled. Highlighting the crucial necessity to adapt ICT to the needs of older users and work on e-Accessibility from a technological as well as legal point of view. Highlighting large market potentials for technologies dealing with older people needs.
2	**2005** The Demographic Change – Impacts of New Technologies and Information Society[65]	Addressing the challenge of Europe's demographic change in comprehensive ways when dealing with information society tools and services. Reinforcing the case for a holistic approach to e-Inclusion of Europe's ageing population in terms of: – modernisation of social and health care – e-Skills and adaptive and accessible technologies for work environments – independent living applications and ICT for socially inclusive (commercial and government) services – using public procurement for promoting e-accessibility – pursuing public research and innovation in user-centred ways
3	**2006** e-Inclusion@eu http://www.e-Inclusion-eu.org	Dealing with 3 topics of e-Inclusion and e-Accessibility in: a) regulatory terms; b) in relation to work and employment; c) in relation to on-line services. Identifying the importance to strengthen synergies across all dimensions of e-Inclusion and providing evidence of market fragmentation for accessible ICT technologies and services while strengthening the case for regulatory approaches for e-Accessibility
4	**2006** Benchmarking from a policy perspective: e-Inclusion Report[66]	Carrying out an in-depth analysis of the results of the annual Information Society Surveys of households and enterprises and relating them to a number of specific themes. The aim was to address areas beyond simple ICT connectivity and highlight intensity of use and wider impact on individuals, enterprises and communities. The study developed Topic Reports for which an in-depth analysis of available survey results was carried out and revealed the urgency to tackle the challenge of exclusion in the information society
5	**2006** Thematic Study to Analyse Policy Measures to Promote Access to Information Technologies as a Means of	Preformed a strategic analysis of how e-Inclusion issues (and the measures that are suited to addressing these) feed into the wider social inclusion agenda. It highlighted the need to ensure that the most appropriate measures are used in tackling the respective e-Inclusion / social inclusion issues. It focused on the necessity to ensure consistency of policy approaches to e-Inclusion in Europe. It stressed the importance of increased attention to targeting those most at-risk when publicly-funded measures to address e-Inclusion are being introduced. It

64 www.seniorwatch.de

65 http://ec.europa.eu/employment_social/social_situation/docs/lot7_ict_finalreport_en.pdf

66 http://ec.europa.eu/information_society/eeurope/i2010/docs/studies/wp5_benchpol_e-inclusion_final.doc

67 http://ec.europa.eu/employment_social/social_inclusion/docs/2006/ict_en.pdf

	Combating Social Exclusion[67]	strengthened the need for better monitoring and evaluation in this area. The study also provided for scope to strengthen the use (and reinforce) legal instruments for e-Inclusion (e.g. Directive on Universal Service, Employment Equality, Public Procurement) and Open Method of Coordination
6	**2007** Status of e-Inclusion measurement, analysis and approaches for improvement: • topic report 4[68] • Handbook[69]	Invited to targeted research with a particular emphasis on structural changes associated with the knowledge society. It also recommended to establish an e-inclusion Observatory on policies and practices (e.g. a benchmarking system including standardised measurement indicators). It encouraged to set up capacity-building actions, for example the creation of an e-inclusion Forum and e-inclusion Alliance, involving a multi-stakeholder approach, to review and reflect on the way forward. It fostered awareness-raising actions, including awards and incentive schemes to promote good practices. It suggested developing an "e-inclusion Charter".
7	**2007** Measuring progress of e-Accessibility in Europe (*ongoing*). Interim report published.	The study seeks to identify measures that have a significant positive impact on e-Accessibility to support the Community e-Accessibility strategy. In order to achieve this goal the study assesses to what extent ICT products and services available in Europe take e-Accessibility requirements into account and how much they take the Design for All principle – including the opportunities of assistive technologies – into account. The main objective of this study is to assess the accessibility situation in Europe in respect to the information society and to measure the evolution and the impact of European measures
8	**2007** CapGemini study on e-Government including accessibility of public websites	*2007 e-Government European Banhcmark*

The main finding was however in the stated need to exchange good practices, linking expertise in the area, connecting local, national and EU levels and learn by experience.

7.5. Other consultation and contacts

7.5.1. Collaboration with other Commission services

In line with Commission practices, an interservice group was set up to inform the relevant Commission directorates of the approach to the communication and to bring in their expertise. In addition to the Secretariat General, the services concerned are DG MARKT, ENTR, EAC, EMPL, SANCO, RTD for the specialised matters relating to their fields of responsibility.

7.5.2. Collaboration with Member States

Member States have been closely involved in the policy making through the establishment of the **i2010 e-Inclusion Subgroup**. The subgroup reports to the i2010 High Level Group on issues related to e-Inclusion and ensures policy exchange across Member States on the follow-up to the commitments of the Riga Ministerial Declaration. The e-Inclusion subgroup

[68] http://ec.europa.eu/information_society/eeurope/i2010/docs/studies/revised_topic_report_4_synthesis_recommendations_final.pdf

[69] http://ec.europa.eu/information_society/eeurope/i2010/docs/studies/e_inclusion_handbook_final_submitted_0307.pdf

has initiated a framework of policy learning based on the exchange of knowledge in the different policy areas for e-Inclusion and has made available national reports on e-Inclusion in the areas considered by the Riga Ministerial Declaration[70]. The group has also provided specific recommendations for e-Inclusion policy.

7.5.3. Collaboration with industry

A number of meetings with representatives of the main market players and users have been held, and will continue in the coming weeks on issues related to e-Accessibility (DTV, Total Conversation, Design for All). These enables DG INFSO to broaden the data it holds on the market and at the same time to take stock of the arguments for or against the proposed regulation as advanced by the industry.

The Commission also initiated activities with the **e-Inclusion partnership** gathering a number of major business organisations (EICTA[71]) and key civil society representatives (EDF[72], and AGE[73]). The partnership is currently working on collaborative approaches in the domain of:

– accessible digital television,

– total conversation solutions,

– the establishment of a master programme on design for all and

– ICT for active ageing at work.

7.6. What did we learn?

The extensive research on e-Inclusion, the interest demonstrated by business entities and the needs put forward by user organisations in several workshops highlighted the following needs:

– The several dimensions of digital exclusion ranging from a number of e-Exclusion factors such as e-Accessibility, to digital literacy, exclusion from publicly provided services, etc. closely interact and mutually reinforce if policies remain fragmented and not effectively coordinated and mainstreamed;

– e-Inclusion is to be tackled in systemic ways relying on the interaction of all possible instruments and all stakeholders stressed the importance of EU level multi-dimensional action thorough: mechanisms supporting research and innovation, regulatory measures, policy coordination;

– e-Inclusion does not only mean the provision of policies, technologies and services countering risk of exclusion and fostering social inclusion. It also has the potential to translates into economic engagement hence business opportunities for the individuals and the economy overall. More e-Inclusion can lead to more economic growth;

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70 Available at http://www.ipolicy.eu

71 www.eicta.org

72 www.edf-feph.org

73 www.age-platform.org/EN

– Inclusion in the information society and especially of marginalised groups does not only depends on active coordination of policy goals and implementation strategies at EU, national, regional and local level;

– Work on the enabling factors of e-Inclusion needs to be pursued.

– Workshop participants and studies identified access, accessibility, digital literacy and inclusive services as key enablers for inclusion and engagement in the information society

7.7. Proportionality of the impact assessment.

The proposed Communication on the e-Inclusion Strategy was part of the 2007 Commission Work-Programme[74]. A roadmap for impact assessment was presented in 2006 and policy options were advanced in line with the ones proposed in this impact assessment. Actions were foreseen in the 2007 Annual policy strategy where the Commission engaged to develop a "European Strategy on Information and Communication Technologies to promote social inclusion and independent living in an ageing society"[75].

The Communication does not involve actions requiring financial expenditures from the part of the Commission. Therefore, the impact assessment does not require an ex-ante evaluation.

This impact assessment suggests the continuation of current activities on e-Inclusion and encourages their increased coordination at EU and national levels. It suggests exploring legislative measures in the field of e-Accessibility. It justifies the market failure in accessibility. It defines the problem and explores possible options for solutions. It provides for a preliminary quantification of costs and benefits of introducing legislation. Therefore, it satisfies the proportionality principle of analysing immediate outcomes of the communication and providing supporting evidence to the statements made in the Communication.

Any decision on legislative measures following the proposed communication will be subject to an extended impact assessment of the measures therein.

74 http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0629en01.pdf

75 http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0122en01.pdf

8. ANNEX 2: RIGA DASHBOARD AND BEYOND

The Riga Declaration quantifies four targets to be reached by 2010: two of them dealing with the supply side (broadband coverage and e-Accessibility of public websites) and two others within the demand side (halving the internet usage and digital literacy disparities).

The *Riga Dashboard* is therefore intended to measure progress towards the Riga commitments. The 2007 Riga Dashboard is the first report of this kind and is aimed at providing evidence for the Communication on the European e-Inclusion Initiative. It mainly draws on available Eurostat indicators and surveys. But it is also complemented by data obtained by specific assessments in other areas such as e-Government, ICT for ageing and ICT for cultural diversity.

The latest i2010 annual report[76] included a first analysis on the progress to the Riga targets and recognised that the Riga Declaration priorities are relevant at the EU level and the required policy efforts needed to reach the targets are substantial given the initial conditions. This has been further confirmed in this first Riga Dashboard exercise in preparation to the European e-Inclusion initiative.

The monitoring of the Riga Dashboard will be performed on a yearly basis to continue quantifying and qualifying progress to the fully achievement of the targets by 2010, as part of the i2010 annual progress report.

8.1. Reducing regular internet usage disparities in at risks groups

The declaration of Riga set out the objective 'To convincingly address e-Inclusion, 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'

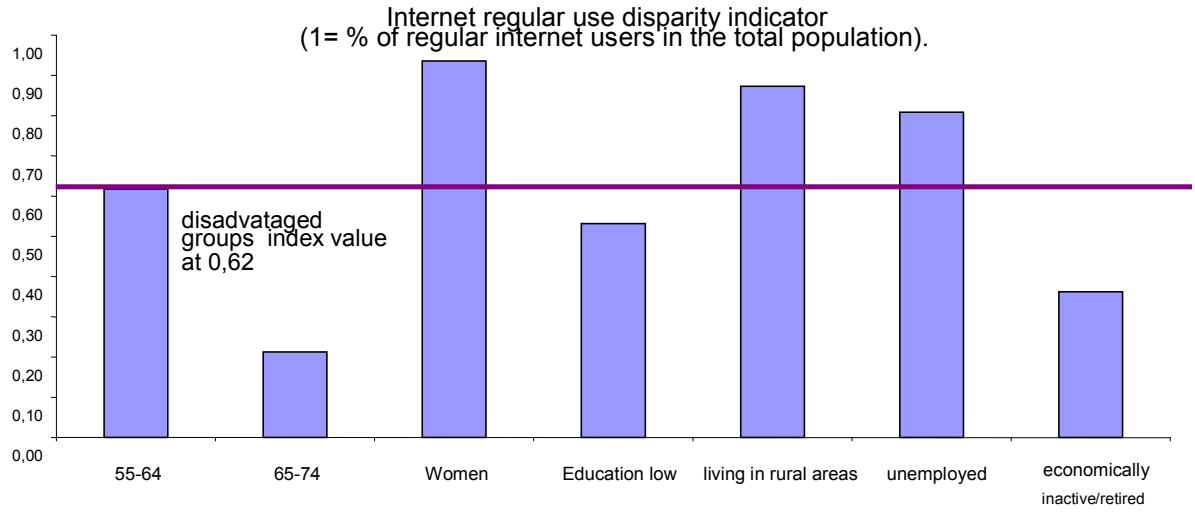
In order to track this target, an index using Eurostat 2006 data has been produced to measure the disparities between the disadvantaged groups and the European average as collected by Eurostat. Indexes are often used to monitor policy measures. The index is based on simple penetration rate ratios, which has been shown to be the most appropriate way to track and analyse disparities over time in digital divide dynamics[77]. This has been applied in the graph below which compares regular Internet usage rates between the total population and that of the different disadvantaged groups. Its value at a level of 0.62, roughly means that the identified at-risk groups (if considered together using an average for the 7 groups) use the Internet at approximately 62% of the European population. Then when considering the different disadvantaged groups individually, it is clear from the chart that the groups more distanced (i.e. with the larger disparities) from the EU regular Internet use level are the aged 65-74 years old, the low educated, and the economically inactive (outside the labour force and retired people); all with index levels around 0.50 or lower, and therefore far away from the total disadvantage groups index value at 0.62.

76 http://ec.europa.eu/information_society/eeurope/i2010/annual_report/index_en.htm

77 'Benchmarking from a policy perspective'- eInclusion report' December 2006

When the index for disparity measurement is applied to the countries, as it can be seen below, the picture on the disparities varies substantially across the EU. A number of countries have an at-risks groups index value much lower than the EU 0.62 one- In particular Bulgaria, Greece or Cyprus have values below 0.50 (meaning that the at-risk groups in these countries use the Internet less than half than the total population in each country).And the country with the highest value (i.e. the lowest disparity) is Sweden at 0.82, meaning that in Sweden at-risk groups use the Internet at 82% of the Swedish population. When it comes to the rates of the specific disadvantaged groups, again most countries have the largest disparities in Internet use with the low educated, the economically inactive, and the aged 65-74. Whereas the disparities for woman, rural citizens, and the unemployed are much lower in most countries, in the group 54-65 years old (old individuals still in working age) there is a very different situation among countries; ranging from 0.89 in Iceland, to only 0.23 in Romania.

Exhibit 3: Internet disparities



*Based on Eurostat 2006 ICT Community Survey of Household and individuals (includes only population aged 16 to 74 years old)

Table 9: Index of Internet use in at risk groups by country in 2006[78]

	aged 55-64	aged 65-74	woman	rural	low educated	unemployed	Inactive	total at risk index
BE	0.64	0,23	0,93	0,83	0,63	0,80	0,45	**0,64**
BG	0,29	0,03	0,96	0,46	0,45	0,27	0,13	**0,37**
CZ	0,47	0,11	0,93	0,85	0,82	0,56	0,18	**0,56**

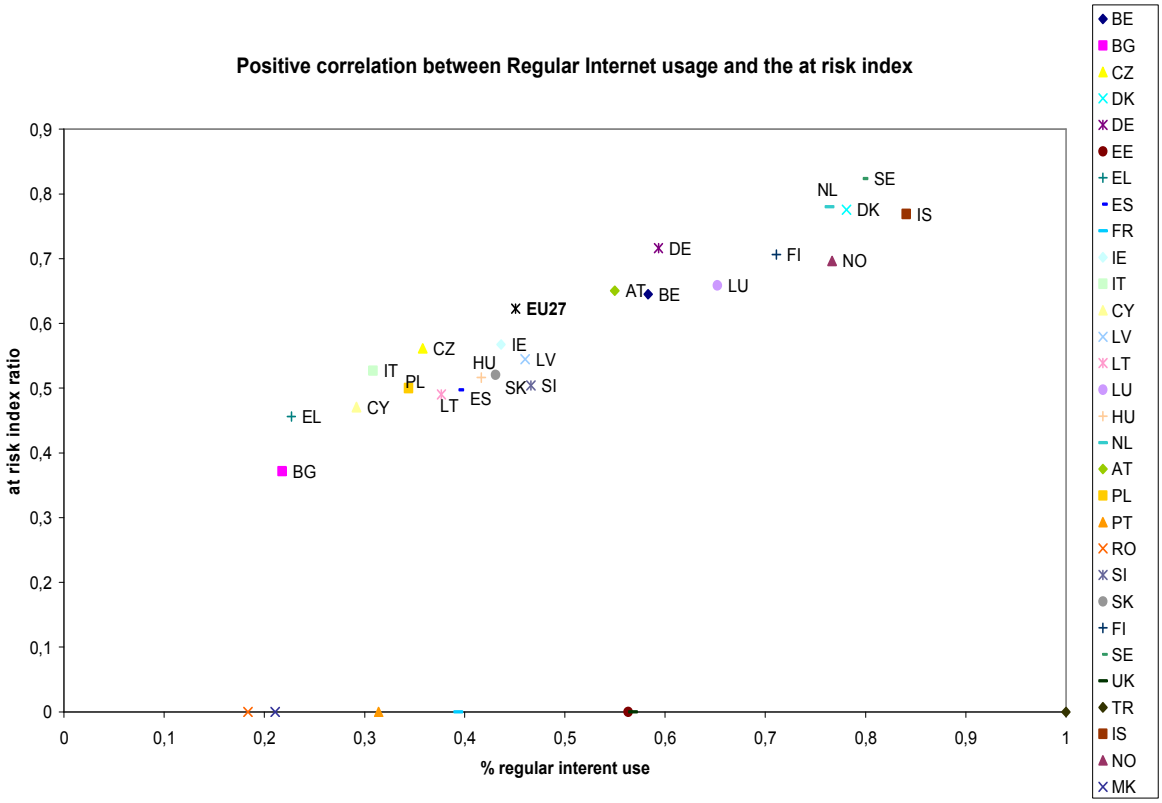
78 Not available - Commission services based on Eurostat Community Survey 2006. (includes only population aged 16 to 74 years old). Data for Malta are currently under revision. The index value for total disadvantaged is calculated as an average of the other 7 disadvantaged index values in a country: aged 55-64, aged 65-74, woman, rural, low educated, unemployed and economically inactive.

DK	0,82	0,52	0,97	0,91	0,85	0,82	0,54	**0,78**
DE	0,68	0,30	0,91	0,87	0,85	0,90	0,50	**0,72**
EE	0,45	:	0,99	0,92	0,80	0,64	0,29	**:**
EL	0,29	0,06	0,80	0,76	0,21	0,89	0,19	**0,46**
ES	0,38	0,10	0,88	0,69	0,42	0,76	0,24	**0,50**
FR	0,61	:	0,93	0,78	0,60	1,01	0,26	**:**
IE	0,51	0,20	0,97	0,76	0,43	0,75	0,35	**0,57**
IT	0,44	0,12	0,83	0,84	0,40	0,87	0,20	**0,53**
CY	0,35	0,10	0,92	0,66	0,34	0,67	0,26	**0,47**
LV	0,40	0,09	0,98	0,82	0,69	0,50	0,33	**0,54**
LT	0,28	0,07	0,99	0,72	0,81	0,42	0,15	**0,49**
LU	0,75	0,33	0,84	0,99	0,66	0,57	0,47	**0,66**
HU	0,49	0,14	0,97	0,76	0,45	0,54	0,26	**0,52**
NL	0,71	0,44	0,93	0,96	0,73	1,08	0,61	**0,78**
AT	0,60	0,23	0,89	0,89	0,61	0,91	0,42	**0,65**
PL	0,34	0,06	0,94	0,63	0,81	0,52	0,20	**0,50**
PT	0,30	:	0,89	0,80	0,50	0,65	0,16	**:**
RO	0,23	:	0,93	0,27	0,08	0,68	0,58	**:**
SI	0,37	0,12	0,91	0,88	0,41	0,65	0,18	**0,50**
SK	0,35	0,02	0,91	0,90	0,82	0,50	0,14	**0,52**
FI	0,72	0,24	0,99	0,91	0,78	0,82	0,49	**0,71**
SE	0,84	0,49	0,95	0,95	0,84	1,11	0,59	**0,82**
UK	0,75	0,34	0,90	1,04	0,35	:	0,47	**:**
IS	0,89	0,41	0,98	0,94	0,89	0,74	0,53	**0,77**
NO	0,81	0,33	0,95	0,95	0,63	0,83	0,38	**0,70**
EU27	**0,60**	**0,22**	**0,91**	**0,87**	**0,56**	**0,79**	**0,36**	**0,62**

As it can be seen in the table above, It has not been possible to calculate the total at risk index for all the countries since some miss data breakdowns for it (:not available) However for those having it, an analysis has been performed to check the level of correlation between the

regular Internet use in a country and the ratio value of the total disadvantaged at risk index in that country. What the graph below shows is that there is indeed a positive correlation and the countries with the highest internet usage rates in 2006 (the Scandinavian countries, Netherlands, Luxembourg and Germany) also have the highest levels in the at risk internet use index (i.e. smaller disparities between the disadvantaged groups and their total population regular Internet use) Whereas the opposite is also true, and the countries with the largest disparities are also the ones with the overall lowest regular internet use l. (Bulgaria, Greece and Cyprus).

Exhibit 4: Correlation between regular usage and risk index



- The projection:

The idea of doing a projection of the internet use disparities is to look at how the Riga Dashboard changes overtime, and to anticipate the likelihood of halving the existing disparities by 2010. Thus the calculation of ratios on Internet use disparity is based on actual Eurostat data (2003-2006) and their projection to 2010[79]. In particular, extrapolations are based on a logistic curve that is quite commonly used for this kind of exercise and under the hypothesis that all the groups will reach 100% usage somewhere in the future (and that as a consequence, the disparity will disappear). Therefore, despite the fact that these projections indicate the need for policy intervention if disparities will have to be reduced, they also implicitly refer to an optimistic assumption that digital gaps disappear over time. However, evidence shows that digital divides are often cumulative and require policy actions to be eliminated.

[79] 'Benchmarking from a policy perspective'- eInclusion report' December 2006

Generally the projection shows that in order to meet the Riga target on halving the Internet usage disparities by 2010, a lot of effort will have to be put in policies addressed to the disadvantaged groups: According to the Commission services' projection, the Riga objective of halving the regular internet use gap is unlikely to be reached by 2010 for all groups (except for the aged 54-65).

The following exhibits present each of the 7 projections performed for the different disadvantaged groups. There are three curves in all cases: a diamond-dotted line showing the EU15 average internet use rate in 2005 (45%) and its projection to 2010 (63%); a second triangle-dotted curve which is a projection of internet use by the disadvantaged group considered between 2005 and 2010, and a third square-dotted curve which illustrates how the ratio between the specific at risk group and the total population changes over time. The closer this ratio gets to 1, the smaller the disparity. For the Riga targets to be met, the disparity ratio would have to be halved between 2005 and 2010.

There are generally three situations found in the seven projections performed:

In some groups (i.e. women, unemployed and rural citizens) the existing disparity is already too small to be halved in 2010. Thus the Riga target is not going to be met. However it is important to emphasize that the situation with these groups is better since their Internet regular use rate is already closer to the EU Population average.

Exhibit 5: Projection: disparities in internet use linked to gender

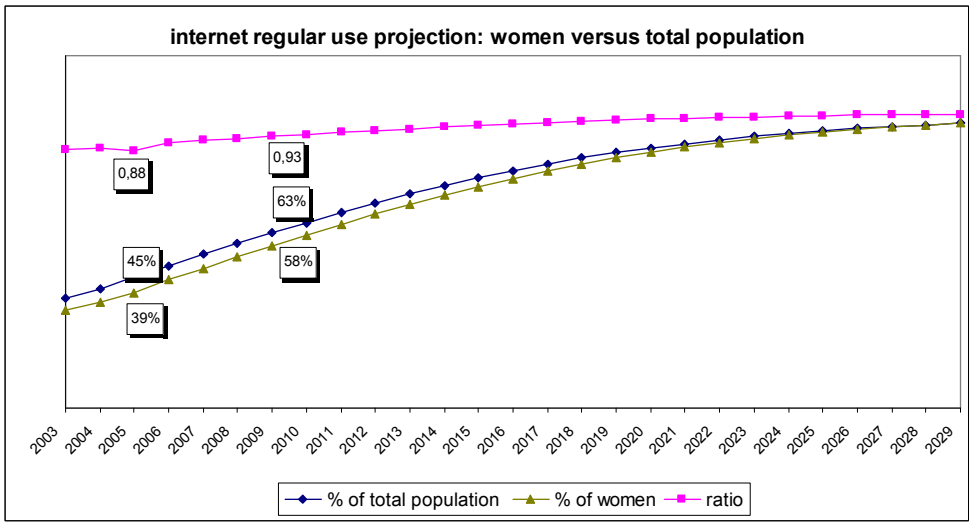


Exhibit 6: Projection: disparities in internet use linked to unemployment

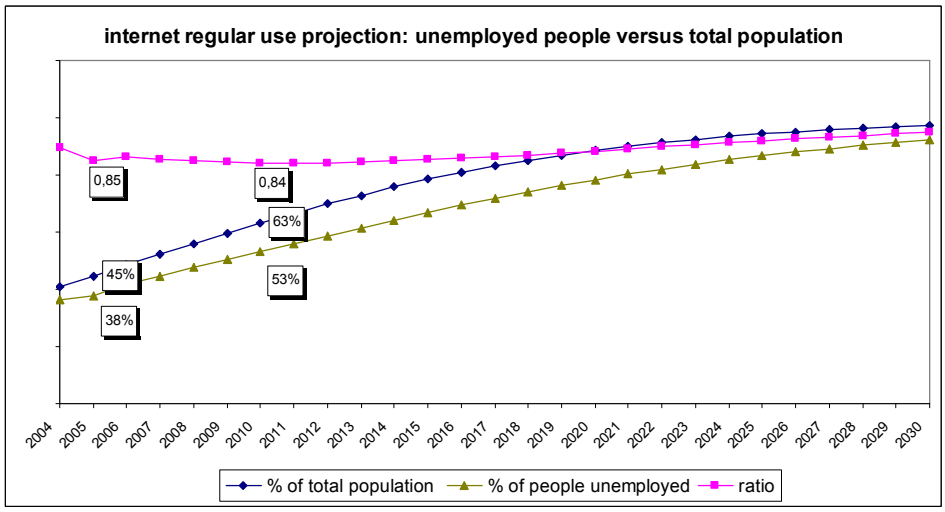
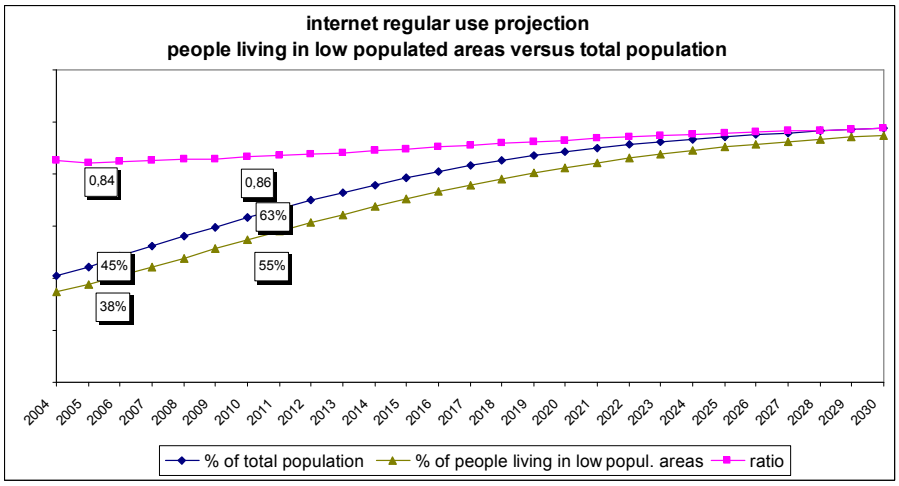


Exhibit 7: Projection: disparities in internet use linked to geographical residence (rural areas)



In a second group of projections below (concerning groups with low education, the economically inactive and the older people between 65-74 years old), the Riga targets are also not going to be met by 2010. However the reason is to be found in the fact that existing disparities are large, and at the projected growth they are not likely to be halved by 2010.

Exhibit 8: Projection: disparities in internet use linked to educational level

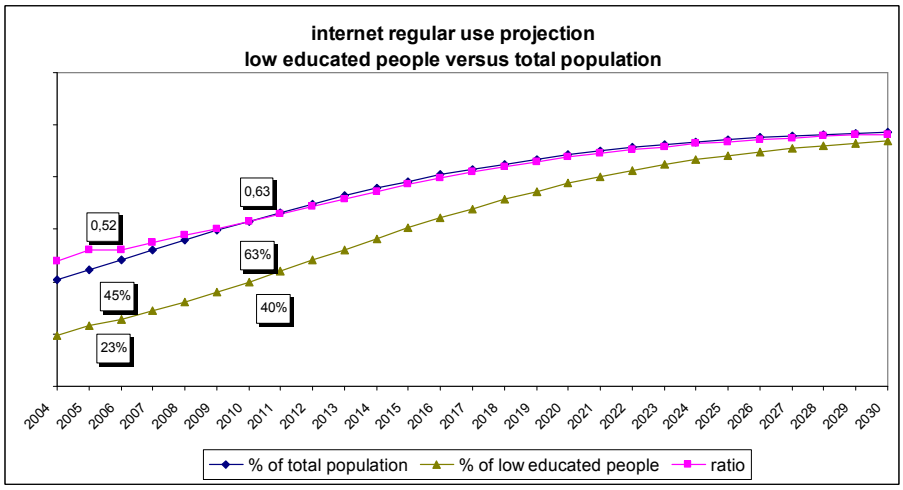


Exhibit 9: Projection: disparities in internet use linked to economic inactivity

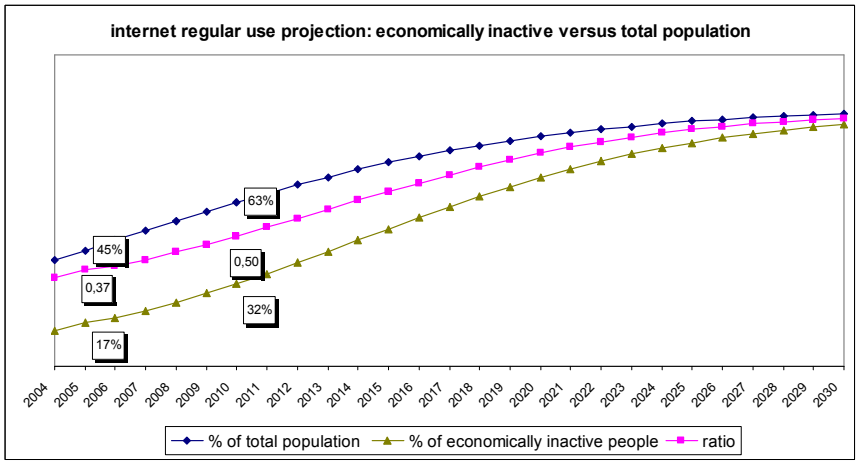
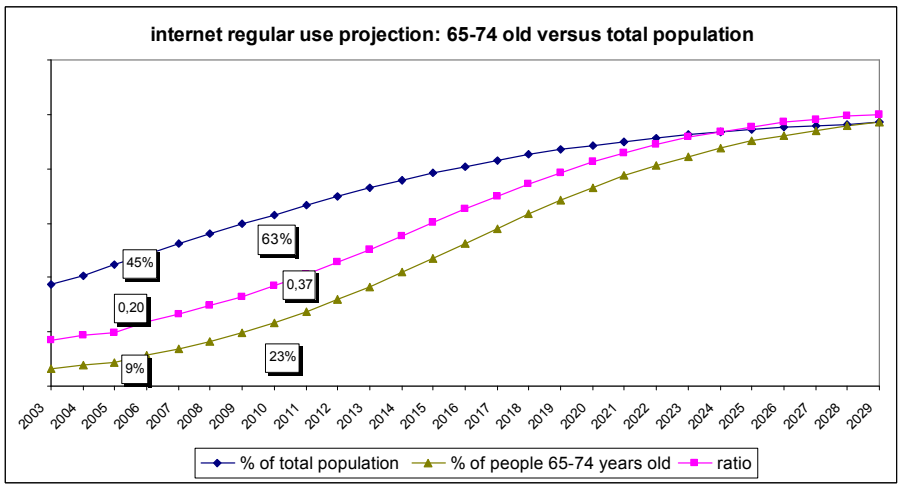


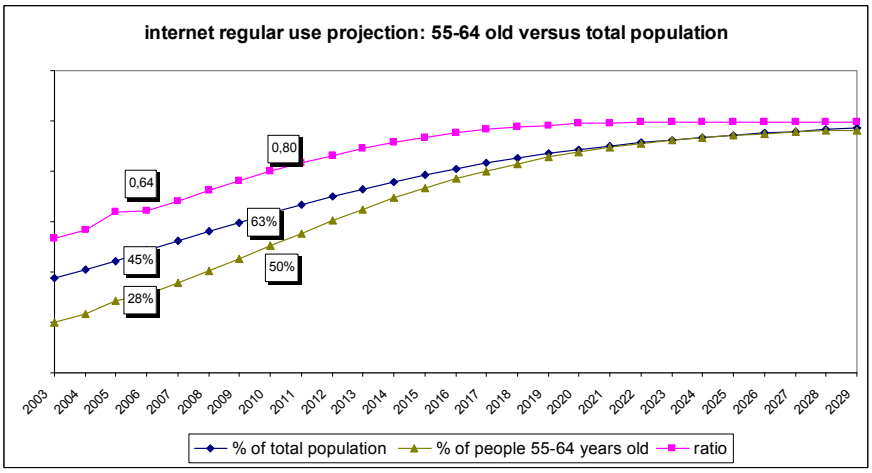
Exhibit 10: Projection: disparities in internet use linked to age (65-74)



Finally, there is a third case for the group including the aged between 55 and 64, where it seems likely that the target could be met under the best possible scenario, (where disparity

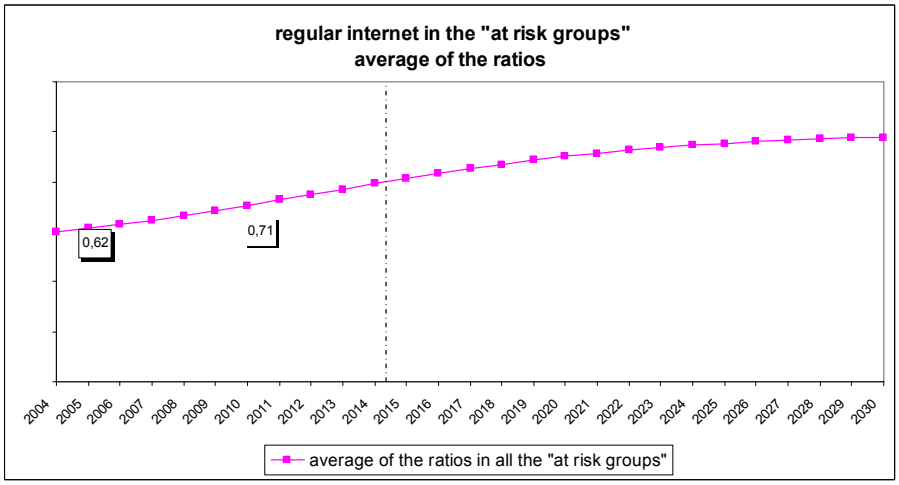
disappears in future). Hence, out of the 7 disadvantaged group projections performed, it is only in the case concerning the group of people aged 55 -64 where the gap seems closest to be halved by 2010 (initial gap in 2005 is 0.36 (1-0.64=0.36) and in 2010 is projected to be 0.2 (1-0.8=0.2). Thus it is likely to be nearly halved from 0.36 in 2005 to 0.2 in 2010.

Exhibit 11: Projection: disparities in internet use linked to age (55-64)



As a final consideration, when performing projections for the 7 groups (based on the average of the 7 ratios), the Riga target is unlikely to be reached by 2010 if all "at-risk groups" are considered (see exhibit below). Currently the disparity ratio is 0.39 (that is 1-0.62=0.38). In 2010 it is projected to remain at 0.29 (1—0.71=0.29). Therefore, the target is unlikely to be met according to this projection unless more decisive policy actions at all levels are considered (the ratio 0.39 would have to be halved to a value of 0.19, instead of 0.29).

Exhibit 12: Projection: disparities in internet use for all "groups at risks" based on average



The simulations above convey a striking message. ***The Riga targets of halving digital disparities will not be reached by 2010 for any disadvantage group except people in the age group 54-64***, even when accepting the very optimistic scenario of disparities disappearing over time with no major policy intervention (same saturation levels for the disadvantaged groups and the total number of individuals aged between 16 and 74 years old),

The policy conclusion from this exercise is that ***efforts need to be put in place to meet the commitments expressed in the Riga Ministerial Declaration***. It is unlikely to reach the Riga targets in the short timeframe to 2010 without major policy interventions particularly focused on the low educated, the economically inactive, and the older users.

This exercise could not consider data on internet use by the disabled population and ethnical minorities since these data are not currently collected by the Community ICT surveys. Therefore the situation can be even more challenging when considering that these groups might be among the ones with lowest internet usage rates. The exercise did not consider age groups below 16 year old and over 74, since available Eurostat data refer to individuals aged 16 to74. However given the greater internet use among younger generations internet penetration levels in these cohorts is expected to increase for ages over 16. Age dynamics are also expected to affect usage rates among the older age groups as current Internet users get older.

8.2. e-Accessibility

The quantitative Riga target for accessibility is to ensure that all public websites are accessible to all by 2010. However, it is already noted that the target, if no major efforts are put in place, will be difficult to meet.

Figures state that only 5% of web sites conform to minimum web accessibility standards and guidelines[80] demonstrating that there is still a long way to go for reaching 100% compliance by 2010.

The accessibility of government websites has to be considered also by taking into account the geographical dimension (national, regional, and local) and the type of e-Government service. Compliance to e-Accessibility is low within a certain range of services or geographical level[81].

8.3. Broadband coverage

In the Riga Declaration, Member States agreed to significantly reduce regional disparities in Internet access across the EU by increasing broadband coverage in under-served locations. The commitment is to increase broadband coverage in Europe to at least 90% of the population by 2010. The 2006 data shows that this target has been basically already met at EU level: 89% of the EU population is covered by broadband. However, if considering only coverage of rural areas, this stands at 71%, with lower download speeds available than in urban areas and less competition between alternative providers[82].

The situation varies significantly also by country: In a number of countries with the highest broadband penetration levels, already 90-100% of the population can have a broadband access (i.e. the Riga target is already met). However in countries where the penetration level is below

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80 Web accessibility figure coming from the study for the 2005 UK Presidency "e-Accessibility of public sector services in the EU".

81 See Measuring e-Accessibility, Empirica et al., 2007, Interim report http://ec.europa.eu/information_society/soccul/eincl/index_en.htm

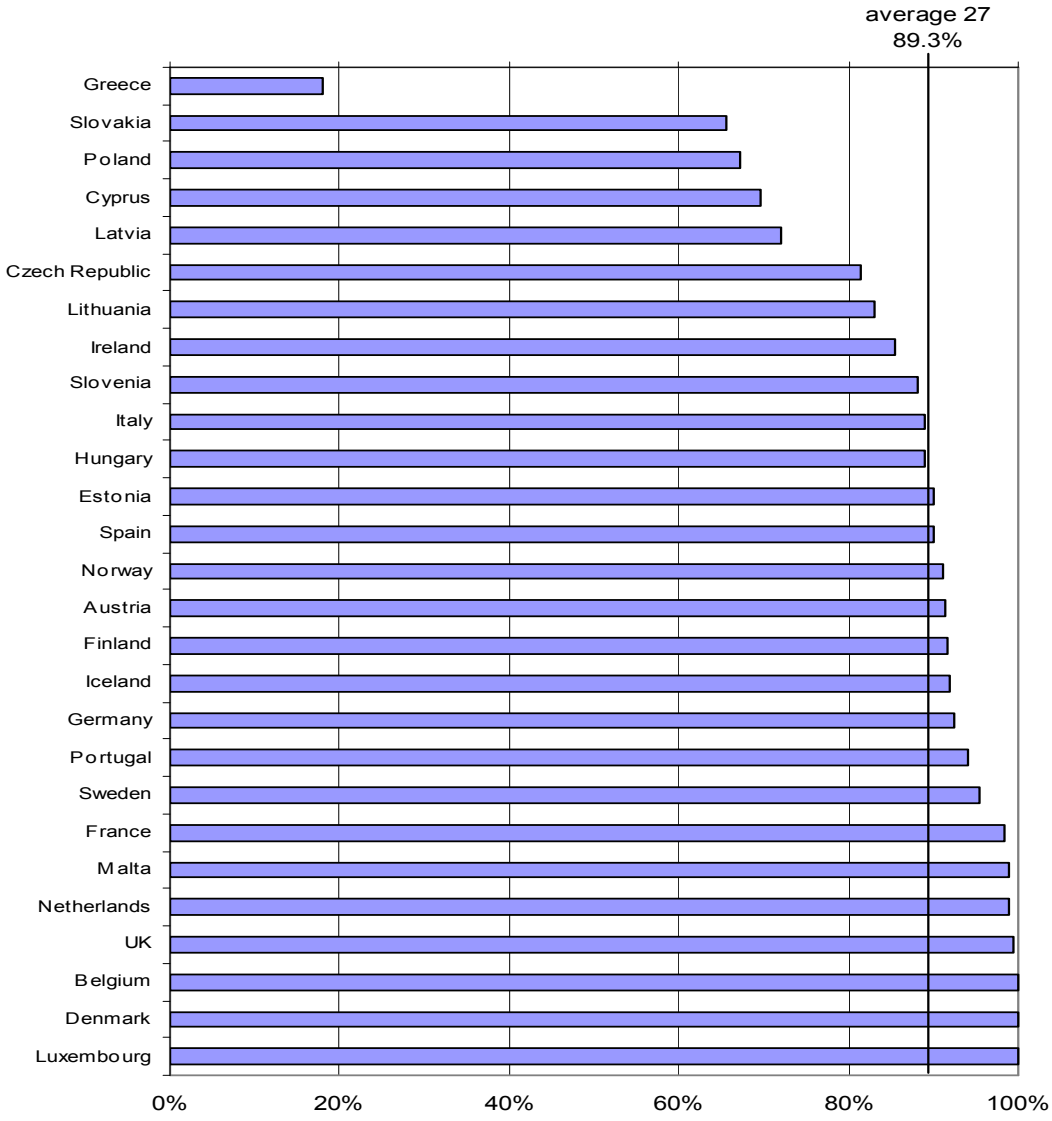
82 Broadband Coverage in Europe, Commission Services (2007, data as of 31.12.2006)

10% of the population, the picture is more diverse, with some countries enjoying around 80% coverage, while in the less developed ones this figure goes to 70-60%.

Thus latest measurements for broadband coverage show that the picture is quite diverse in Europe:

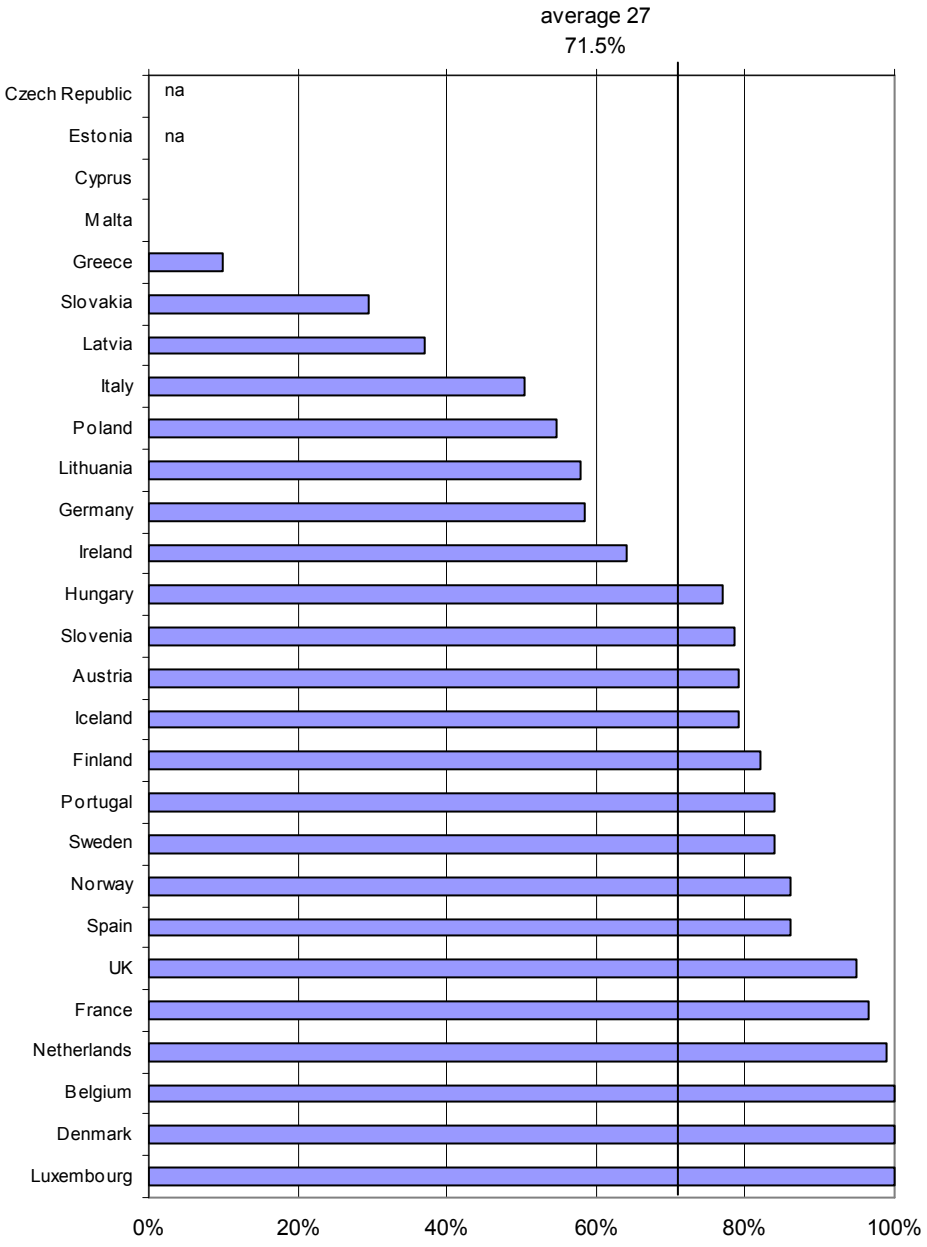
- Average DSL coverage reached 89.3% of the population at end 2006 in EU (and 92% in EU-15) Thus Riga has been met. However in rural areas there are 71% of the citizens reached by broadband.
- There are wide differences at country and regional level: Greece is still lagging behind with only 18% while Benelux countries as well as DK or the UK are close to 100%

Exhibit 13: Coverage by country: broadband coverage in Europe as a % of the total population



* IDATE, 2007-note it does not include satellite and wireless technologies, only cable and DSL deployment)

Exhibit 14: Rural coverage by country : broadband DSL coverage in Europe as a % of the rural population



* IDATE, 2007-note it does not include satellite and wireless technologies, only cable and DSL deployment)

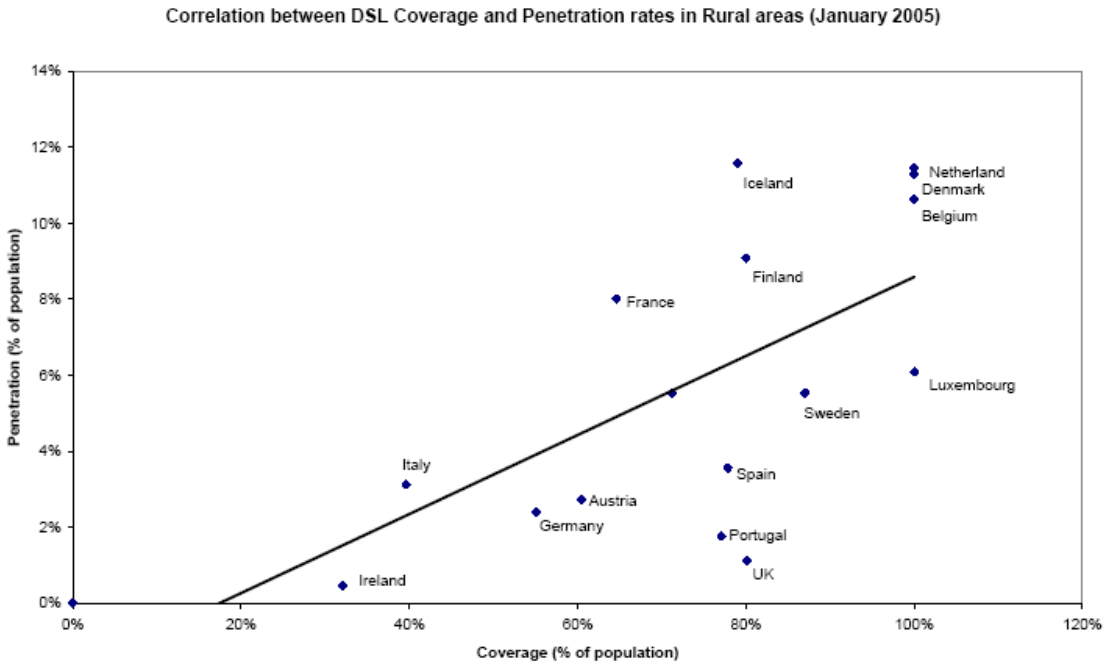
In addition to broadband coverage, in the view of the 2008 e-Inclusion initiative and future Riga Dashboards, it would be also interesting to track progress in broadband penetration, since there are large differences in take up at national and regional levels.

– At end 2006, Broadband **penetration** in EU-27 reached 27% (has increased over twofold from 12.5% at end of 2005)

– However penetration rates still vary greatly from one country to another: from 3.3% in Bulgaria to 32.3% in Denmark. In fact there are still 7 countries in Europe below 10% of broadband penetration.

– Penetration is also lower at the rural level: In urban areas broadband is almost ubiquitous and there is no correlation between access and take-up[83]. Whereas there is a positive correlation in rural areas: take-up is higher in those countries where broadband is more widely available (Figure below). Even if the rural population may be less inclined to adopt the new technology, lack of access may very well be constraining would-be users. Other factors might be related to the affordability, quality (i.e. speed) and offer of broadband contents and services in rural areas.

Exhibit 15: Take-up in rural areas is higher in those countries where broadband is more widely available. Source: Commission services



These aspects will be further explored in the context of the next Riga Dashboard since there is a new indicator in the 2007 Eurostat ICT Community survey on barriers for not getting broadband at home. This question includes the reasons why citizens are not having a broadband connection at home (i.e. lack of availability, problems of affordability, lack of interest, lack of skills, access to broadband at work, etc.) and thus will complement the analysis to better understand the gap between coverage and take up, also at rural level.

Another aspect to be explored in future editions of the Dashboard is the regional level data available for analysis[84]. Finally, the issues related to convergence, multi-platform access of the Internet, and locations of use are other potential indicators to complement the dashboard in the view of second digital divides emergence.

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83 Digital divide forum report: Broadband access and access and public support in under served areas", European Commission, Brussels 2005.

84 Though note that not all the MS are providing regional level data to Eurostat: the availability of regional data for the Community survey is on a voluntary basis but already large.

8.4. Digital literacy

Digital literacy is the final target set up quantitatively in the 2006 Riga Ministerial Declaration. As a result of the implementation of related actions the current usage gaps of digital literacy and competence between disadvantaged groups and the average population should be halved by 2010.

Progress on this target will be measured on the basis of available indicators and further work in the context of i2010: In the Declaration, the Commission has agreed to publish a Review of existing policies in a national and regional level to support Digital Literacy in these groups as well as a review of indicators on it. A special module on Digital Literacy later in 2007 in the Community Household Survey will provide further progress to it.

In the meantime, using indicators on e-Skills for competences in using computer and internet in the Community survey in 2006, groups with the lowest levels of computer and internet skills are the less educated individuals, older people and the economically inactive when compared to the total population (see table below). Unemployed individuals and women however -though still slightly below the EU average- have better computer and internet skills levels than the other disadvantaged groups.

Table 10: Digital literacy

Internet User Skills

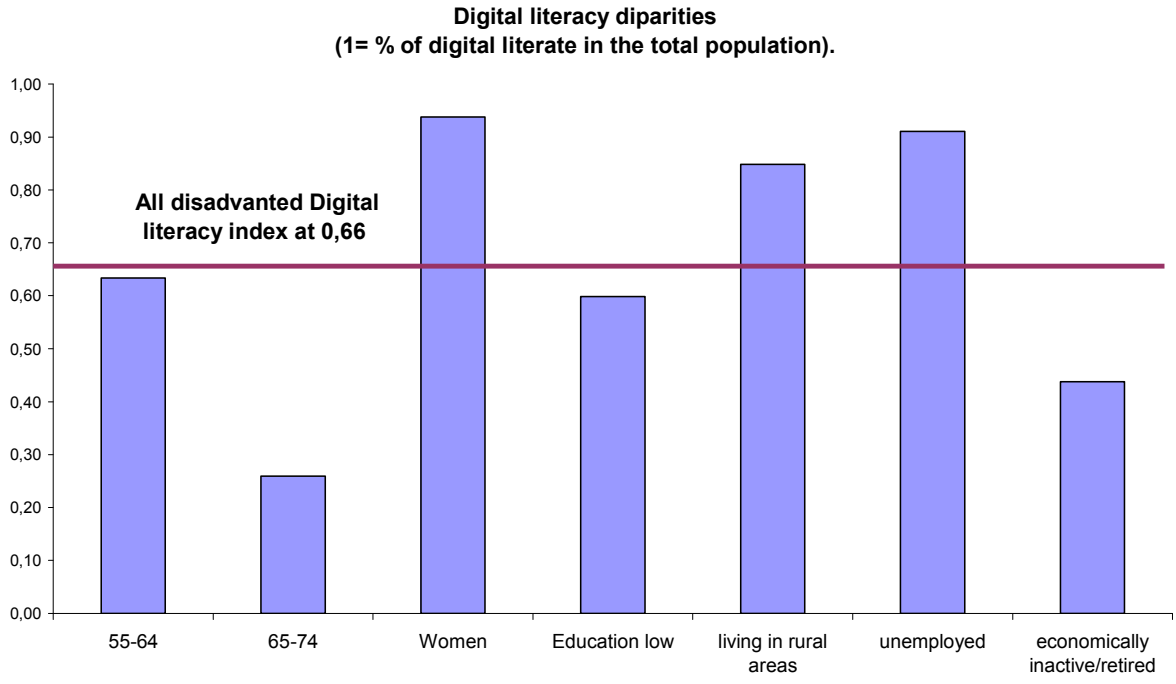
Internet user skill level	EU total	Low educated	Aged 55-64	Aged 65-74	Retired/ inactive	unemployed	women
Never used	43	67	65	85	76	48	47
Have some degree of internet skills	57	33	35	15	24	52	53
Computer User Skills							
Computer user skill level	EU total	Low educated	Aged 55-64	Aged 65-74	Retired/ inactive	unemployed	women
Never used	41	65	61	83	73	44	44
Have some degree of computer skills	59	35	39	17	27	56	56

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)

Source: Eurostat, Community Survey on ICT use in Households and by Individuals, 2006

In addition to percentages, an index to measure disparities in this indicator has been built using Eurostat 2006 data. The digital literacy disparity index below shows similar results to the one on regular internet use presented earlier. Its value at a level of 0,66 means that the ratio of digital literacy of groups at risk of exclusion to the digital literacy of the average EU population is 66%. Groups with largest disparities in digital literacy in comparison to total population level are people aged over 65, the economically inactive, and the low educated.

Exhibit 16: Digital literacy disparities



Digital literacy has been calculated using an average of two indicators: percentage of EU citizens with some degree of Internet skills and percentage of EU citizens with some degree of computer skills

Further Riga Dashboard analyses will look further into the realisation of the target on digital literacy including the use of 2007 Eurostat data on digital literacy. Similar projections to the ones produced on internet use will be performed for this target[85].

[85] It was not possible to include the projection this year since one additional timeserie is requested- this will be performed once the 2007 Eurostat data has been relished for the next Riga Dashboard.

8.5. Beyond Riga Dashboard: Inclusive e-Government

According to a recent survey[86], on average only about 20% of all users of government services[87] in ten EU Member States relied on digital channel to access them. When contacting government, most citizens still use overwhelmingly the face-to-face channel (80%) and other traditional means such as telephone and post (about 40%). There are of course significant differences between countries, with Denmark leading in the sample with over 40% of government users using e-Channels, whilst in the Czech Republic the figure is less than 9%. Also, in the UK and Ireland the use of the postal services and the telephone has overtaken face-to-face.

Given this situation, there are clearly prevailing supply side failures and barriers (low internet availability, low roll-out, poor accessibility and usability, limited promotion and awareness of e-Government services) whose removal will benefit everyone. Limited use of e-Government services is clearly not just a problem of disadvantaged groups, even though disadvantaged groups are likely to be more seriously affected than the mainstream population.

Confirming and partly explaining the above picture on limited e-Government use among the wider population, a study for the UK Cabinet Office examined the digital engagement[88] of all people in the UK and found that 48% of the adult population were unengaged, i.e. had never actively used the examined technologies or had not done it in the previous three months (even though only 13% had no home access to these technologies). However, 78% of people aged 65 and over were in the low or moderate access, unengaged groups, as was the case for 63% of people in low and unskilled occupations. Lack of access to digital technologies was also found to be strongly correlated with unemployed households and household including someone with a long term illness.

These results demonstrate that a large proportion of socially excluded groups do not have access to ICT and/or are unengaged, and are therefore digitally excluded from government information and services provided electronically.

This is also confirmed by the figure below which shows that citizens in employment seem to have a somewhat higher use of e-Government services than other groups, as do those who are better educated and in the younger age groups with the exception of those under 25.

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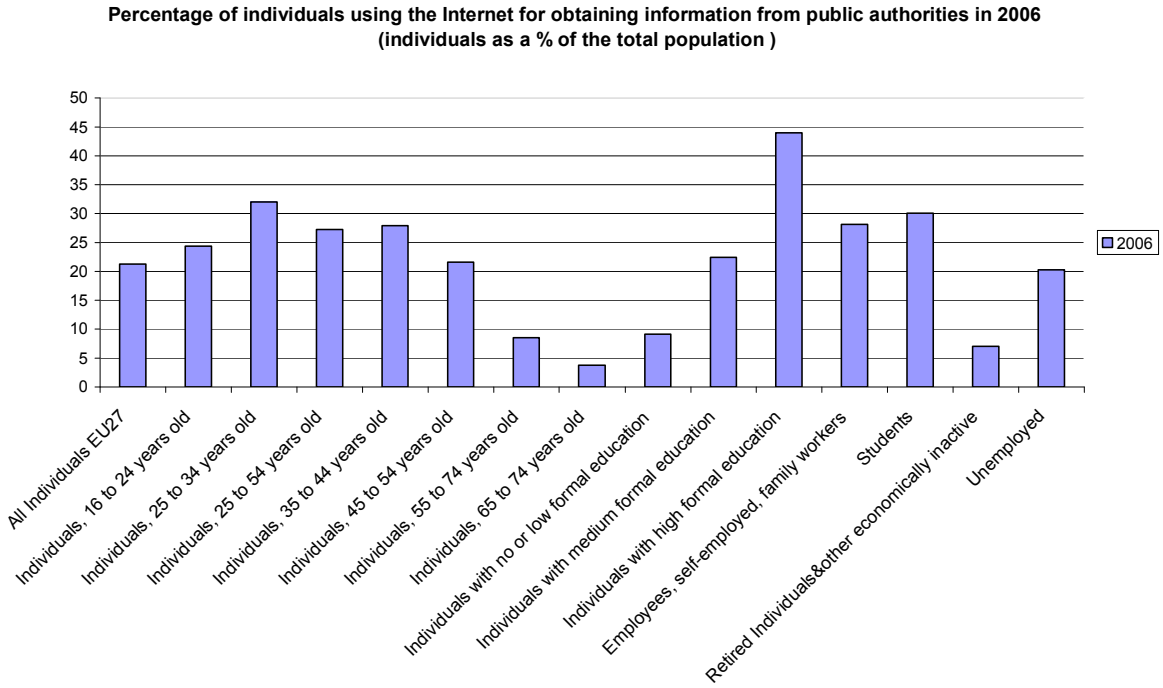
86 The eUSER survey in 2005 provided a statistically valid telephone interview sample of about 10,000 adults at home across ten EU Member States (the Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Poland, Slovenia, and the United Kingdom), as well as studies on the supply side, on good practice and on user-orientation issues related to e-Health, e-Government and eLearning services: http://www.euser-eu.org.

87 According to the survey, almost 70% of all adults had direct contact with the public administration in the previous 12 months.

88 Cabinet Office Report "Enabling a digitally United Kingdom" (2004). Digital engagement was measured by crossing 4 levels of home and/or community access to the three selected technologies (PC, mobile phone and Digital TV) with three levels of use.

Exhibit 17: e-Government usage by socio-demographic group in 2006



A concern for persisting digital divides arises in this context as it is the poorer, less educated, less skilled and more vulnerable citizens who make both greater direct and greater indirect demands on government, but yet who face much greater access barriers via both electronic and traditional channels[89].

The eUser survey[90] has shown that, after supply-side conditions, user skills and digital literacy on the demand side are the next most important determinants of high and beneficial use of e-Government services. Such factors seem to be more significant for e-Government uptake than socio-demographic factors like income, gender, labour force status and to some extent also education. Promoting the digital literacy of disadvantaged groups is therefore an important measure to achieve wider own-use of e-Government services.

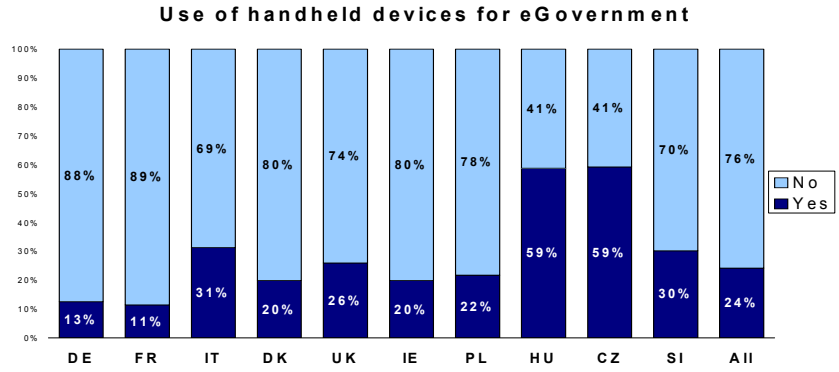
The following figures show that higher degrees of user digital competences lead progressively to higher use of e-Government, so that users with the most developed e-Skills tend to use e-Government services more.

On the other hand, research has found that it is still the case that those users of e-Government services who access the Internet from PC platforms tend to be in higher income groups, of lower age and with a tertiary education. In contrast to this, access to e-Government services

89 eUSER, op. cit., found that the more intensive users of government services (not e-Government) tend to be able, well educated, higher income citizens, in an older age group, not working because of unemployment, invalidity or retirement. While the latter features reflect stronger needs which likely justify greater use of government services, the role of abilities and background factors highlight that social exclusion factors are at play even before digital divide considerations.

90 Millard, J. (2006, forthcoming) "Report on current demand/supply match for e-Government", part of Deliverable D5.2, eUSER Project, an IST Sixth Framework Programme R&D project: http://www.euser-eu.org.

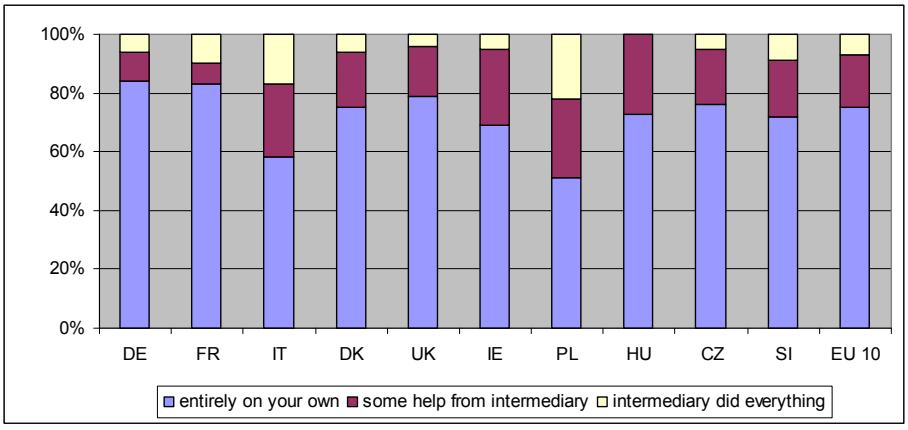
through hand-held devices, like mobile phones or PDAs (personal digital assistants or organizers, i.e. 'm' or mobile government), is both becoming more important generally (see exhibit), and is particularly important for people who are otherwise likely to be digitally excluded. These include groups with degrees education below secondary level, those not working or disabled persons, as well as those living in countries where access is a greater problem.



Multi-channel delivery strategies, especially using mobile phones, are thus important ways of providing inclusive e-Government services.

Addressing e-Skills or providing alternative channels are relevant aspects when promoting and increasing the direct use of e-Government services. For a number of reasons, however, many potential beneficiaries of these services –especially among disadvantaged groups- will never be able or willing to access them directly. So called ***'social intermediaries' have been found to play already an important and largely unexpected role in this respect***. 42% of e-Government users in the ten surveyed countries access the services also on behalf of family or friends (more so in the countries with highest e-Government use[91]) and they assist on average 2.6 people (many more in the New Member States, up to 5.3 in the Czech Republic).

Exhibit 18: e-Government users receiving support from a social intermediary



The figure above shows that on average 18% of all e-Government users receive some help from an intermediary, whilst 7% receive complete help. This means that approximately a

[91] Based on % of government users using eChannels they are Ireland, Denmark, the UK and France.

quarter of e-Government users are not fully autonomous. Support from an intermediary is highest in the new Member States, which may be due to greater access problems and lower digital skills so that more of the population may need to use e-Government via the more skilled social intermediaries. This probably also reflects different national levels of e-Government service development, particularly in terms of sophistication and user friendliness. Italy and Ireland are the only older Member States with greater than average numbers of users receiving help from a social intermediary.

The profile of the typical citizen receiving assistance in using e-Government, derived from the eUser analysis, is highly specific. Low digital engagement and skills, manual and unskilled occupations, rare internet user and living in regions with low internet penetration. Assisted users tend to be aged 50 and over, to demonstrate a markedly low functional and low leisure online orientation, to be female rather than male, with below secondary level education, unemployed or not working, with an income below the poverty level or no higher than median income, to have Internet access outside the home, and to have started to 'use' the Internet only very recently. These latter factors are, however, not statistically significant. Overall, the types of individuals receiving assistance from social intermediaries for e-Government tend to be those who are otherwise beyond the digital divide and excluded from e-Government, as well as from other Information Society benefits, and who are living in countries which are not leading in e-Government.

The social intermediaries themselves represent a potentially rich resource and are likely to have existed at family and community levels, helping to disseminate the benefits of public and private services long before the Internet provided another channel. They also possibly reflect a transition phase for many, prior to their own use of eServices as with previous historical patterns of diffusion of new technologies, even though better understanding is needed of whether intermediaries ultimately act as a barrier or a stepping stone to own use of e-Government services.

8.6. Beyond Riga Dashboard: ICT and active ageing

The Riga declaration sets the targets to: a) reduce to a half the gap in current average internet use between the EU population and older people; b) remove barriers to internal market of ICT services and products for the elderly; support active ageing at work, especially through greater training for ICT skills; c) support active participation of elderly in society; support independent living and quality of life.

Europe's population is ageing. By 1995 70 million people over the age of 60 were living in the Union, almost 20% of the population. By 2020, this figure will rise to 25% and people of 80 years and older will more than double. At the same time, the total working age population (15-64 years) is due to fall by 21 million between 2005 and 2030. This demographic evolution raises many challenges that ICT can help to address, creating many benefits to older individuals, but also to the economy and society at large.

Disability affects many older people: 21% of persons over 50 experience severe vision, hearing or dexterity problems which can prevent an effective use of ICT. On the other hand, accessible ICT solutions and assistive technologies can help overcome many of the above impairments thus supporting the active participation of the elderly in society, independent living and quality of life. More than 20,000 assistive technology products are estimated to be

available in Europe, but they suffer from lack of interoperability with mainstream ICT environments and other problems.

Greater use of ICT for health and social services by older people and by those who assist them is also needed to improve social and health care delivery while containing their cost. This will be crucial given that spending on pensions, health and long term care will increase between 4 and 8 % of GDP in coming decades. Improvements in healthcare management, specifically full interoperability among the service providers, promise however the largest savings.

Overall, workers aged 50 years and older now comprise just a little under one-quarter of the EU workforce and projections based on population trends for the EU 15 suggest that the share of older workers may increase to almost one-third by 2021. ICT can provide the necessary tools and levers to retain and re-train older workers providing them with better quality work and allowing them to offer their skills and expertise while respecting their life and geographical preferences.

Today, however, only 27% of people over 54 and 10% of those over 65 years old use the internet regularly, compared to 47% for the EU25 on average. This means that existing barriers, technical and economic, but especially those linked to awareness and skills, need to be removed.

8.7. Beyond Riga Dashboard: ICT and cultural diversity

The Riga declaration set the targets to: a) promote cultural diversity in relation to inclusion by: fostering pluralism, cultural identity and linguistic diversity in the digital space (multilingual, local, cultural heritage, European values content); b) improving economic and social participation and integration, creativity and entrepreneurship of immigrants and ethnic minorities through their greater participation in information society.

On January 1st 2003, 15.2 million of third-country nationals were counted among the EU-25 residents, i.e. 3.35% of the total population. The percentage of foreign-born people varies significantly across Europe from less than 3% in the Slovak Republic, Finland and Hungary, to between 8 and 13% in the UK, France, the Netherlands, Germany, to 32% in Luxembourg. All these figures are bound to grow, given Europe's declining population, the ageing of its workforce, the lack of qualified personnel, and recently improved economic growth rates. The diversity of the immigrant population itself has been growing, with a large part of the recent flows coming from countries such as Russia, the Ukraine, China and Latin America (especially to Spain).

Cultural diversity, a distinctive attribute of the EU since its inception, is thus bound to grow significantly, raising many challenges to guaranteeing cohesion among growing numbers of social groups with disparate cultural backgrounds, languages and customs, but also to exploiting the potential of this diversity in many directions. Among the benefits of promoting cultural diversity, a recent study[92] on the role of the creative class[93] for regional growth and

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92 Boschma, R. and M. Fritsch (2007): Creative Class and Regional Growth - Empirical Evidence from eight European Countries, Jena Economic Research Paper, Friedrich-Schiller-University and Max Planck Institute of Economics, Jena, Germany

93 Florida, R. L. (2004): The Rise of the Creative Class, revised edition, New York

innovation in eight European countries has clearly shown that a regional climate of tolerance and openness has a positive effect on the regional share of the creative class in employment and this, in turn, is positively reflected in regional employment growth, new firm formation, innovation and economic growth (with the relationship working also in the opposite direction).

ICT is seen to have potentially mixed effects in promoting cultural diversity. The beneficial role in supporting migrants' personal ties with distant family and friends has raised concerns that this might lead to further social isolation and to a slowing down of integration. On the other hand, widespread use of ICT especially among younger people, including in immigrants and ethnic minorities groups[94] might enable bridging links across ethnic, cultural and language barriers for instance through the new social media, might contribute to filling jobs in high-skill sectors and to support the many small businesses started by immigrant entrepreneurs, which represent an important avenue for integration in the economy and contribute to the quality of life in many cities.

Concerning multi-language information on public sector web sites, evidence shows that when available is almost always still limited to English and is targeted to tourists, foreign investors or researchers. Of course, e-Government portals are also available in other official national languages where they exist[95]. The Czech Republic has a national web site devoted to foreigners living in the country and translated into several languages[96]. In the UK the Cabinet Office has issued guidelines with regard to designing information resources in different languages for government websites. In the Netherlands many local governments use specially designed 'virtual integration counters' to facilitate access to services by immigrants and ethnic minorities[97], but much appreciated also by native users.

Beyond such cases, systematic attention to cultural diversity in e-Government services seems to be lacking, at least based on the few surveys which have measured it. For instance, in Emilia-Romagna, one of the regions with much developed e-Government services, the latest information society benchmarking exercise[98] found that 100% of the largest municipal governments and 78% of the provincial governments had on their web sites foreign language sections, again in English and mostly for tourists. However, a deeper analysis of services of primary interest for immigrants showed that online information about them is now quite common but in Italian only. Only 6% of the sampled municipalities had foreign language information on residence permits, 2% on social services and only one provincial authority provided multi-language information on labour market services.

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94 The OFCOM study "Communications Market Special Report. Ethnic minority groups and communications services" (June 2007) found these groups to be intensive users of communications technologies and services in the UK and to have much higher interest and positive attitudes to technology than the overall population (much related to the different age profile of the two groups).

95 For instance, for Spain see http://www.060.es/

96 http://www.en.domavcr.cz/

97 For instance, see http://www.GovWorks.nl/amsterdam

98 Regione Emilia-Romagna, "Il benchmarking dell'e-government della Pubblica Amministrazione locale emiliano-romagnola", September 2007

9. ANNEX 3: LITERATURE REVIEW AND MODELLING E-INCLUSION

There is a multitude of factors that influence digital inequalities and lead to processes of e-exclusion or conversely, if adequately tackled, favour e-inclusion and its many economic and social benefits. They span across different dimensions of analysis and disciplinary fields. They range from micro level individual behaviours to more macro level dimensions such as the social structure of access to life chances. They relate to both psychological and cognitive understanding of individual behaviour and traditional sociological analysis of status characteristics (or Socio-Economic Status, henceforth SES), and also include the integration of the two perspectives.

ICTs cannot be interpreted simply as 'technology' as they are also means of communication or a medium to be compared with other media such print, radio, television, etc. This suggests that insights should be sought also from the history of diffusion of such media and from the corresponding research traditions (media and cultural studies).

Adoption or dis-adoption of ICT also depends on aspects that are intrinsic to the way technological devices and technology based services are designed and provided. On the one hand, this brings into the picture the specialised knowledge domains of human/machine interaction and ergonomics. On the other hand, this points to the importance of the supply side and the functioning of the market, for it is the way suppliers produce and design products and services that shape their usability and accessibility and it is the market functioning and structure that, for instance, influence the affordability of assistive technologies or the broadband coverage. However, supply and market can on their turn be shaped by the state in its legislative and regulatory function, thus adding a further dimension.

In summary, a full understanding of the field would require a multi-disciplinary focus spanning: from consolidated and classical sociological and economic theories of poverty and inequality and of social exclusion/inclusion, to emerging attempts to apply such mainstream body of knowledge to the field of e-exclusion/ e-inclusion; from classical studies of technology and innovation diffusion (various strands of the S-shaped diffusion curve) to studies of cultural and media consumption; from communication and cultural studies to the domain of cognitive science approaches to human/machine interaction and ergonomics; from studies of regulatory effects on competition and market structure to the field of intellectual property rights. The list could actually be further expanded.

Despite the growing literature on digital inequalities and e-inclusion, it is not yet possible to find any fully consolidated and exhaustive theoretical model of the processes of digital exclusion and inclusion that, integrating insights from different disciplinary perspectives, explains in a holistic framework differentiation in access to, use of, and outcomes from, ICT. Analysis and reports on e-inclusion have not yet arrived at fully-fledged theories and models integrating the insights from other areas such as the study of poverty and social exclusion, studies of inequalities in access to cultural and information goods, social and cultural studies of technology consumption and appropriation, the implications of network and social capital theories, just to mention a few. As it will follow, at times models are proposed that in practices are not really models or theories but pragmatic descriptive and typological tools.

It was clearly beyond the objectives and scope of this IA to review in depth the contributions from all the potentially relevant disciplinary fields, or to build a full-fledged new and holistic

theory of e-inclusion. In this Annex in paragraphs 9.1 through 9.3 some approaches and empirical evidence will only be selectively reviewed and discussed. Finally paragraph 9.4 will present our preliminary heuristic model of digital inequalities or opportunities (depending on the outcome of the interactions between the considered variables):

This overview is based on some of the EU financed studies earlier listed in Table 12 of Annex 1, as well as on other sources retrieved and analysed specifically for this IA.

9.1. Beyond the digital divide and S-Shaped thinking?

A key finding of this overview is the identification of a trend: in the past few years an increasing number of scholars have pointed out the need to move beyond the distinction between "haves" and "have-nots" in terms of access only, which has characterised the earlier discussion of the 'digital divide'. These scholars propose to focus on other dimensions as well such as quality and intensity of use and the positive outcomes that can derive from it in terms of human capital, social capital, income ad other socially desirable outcomes. This trend is sometimes referred to as the move from first order 'digital divide' to 'second order' or higher order 'digital divides'

Such perspective can also be found, for instance, in two EU documents worth citing. The first is the Commission Staff Working Document "e-Inclusion revisited" that was elaborated with the contribution of the High Level Group on the Employment and Social Dimension of the Information Society" (ESDIS). The document affirms that 'qualitative research on ICT appropriation in the everyday life of European citizens can add a crucial dimension to the picture delivered by the current quantitative indicators' and calls for 'a paradigm shift from e-inclusion to processes of ICT appropriation in everyday life of European citizens'[99]. The second is the final report from eEurope Advisory Group Work Group No.2 on e-inclusion from which the following passage is extracted:

…the current focus on ICT access, upon which most policies are based and evaluated, failed to capture the real challenge of e-inclusion. e-inclusion is nothing more than social inclusion in a knowledge society. Access to ICT tools, networks and services, and even "digital literacy", are at most preconditions for e-inclusion. Beyond that, the real issue is whether ICT make a difference in an individual's ability to take part (in work, social relationships, culture, democratic life, etc.) in society as it is, or as it becomes[100]

From the perspective of the history of the social sciences and research this change of focus is a natural and expected trend. It is sufficient to look at that history to find many fields where initially researchers looked dichotomously at access to broadly defined resources and then moved to more sophisticated analysis as basic access grew. In the field of education, just to provide one example, initial analysis focused on attendance and graduation by different social groups, to then widen the analysis to additional parameters (inequality in access to college-preparatory tracks and elite universities, or variations among different kinds of children in class size, school resources, or the availability of advanced placement). Naturally this was not

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99 Commission Staff Working Document, e-Inclusion revisited: The Local Dimension of the Information Society, SEC(2005) 206, Brussels: European Commission, 2005, p. 19 (http://ec.europa.eu/employment_social/knowledge_society/docs/eincl_local_en.pdf)

100 eEurope Advisory Group – WG2 – e-Inclusion: Final Report, e-Inclusion: New challenges and policy recommendations, July 2005, p. 4. (http://ec.europa.eu/information_society/eeurope/2005/doc/all_about/kaplan_report_e-Inclusion_final_version.pdf)

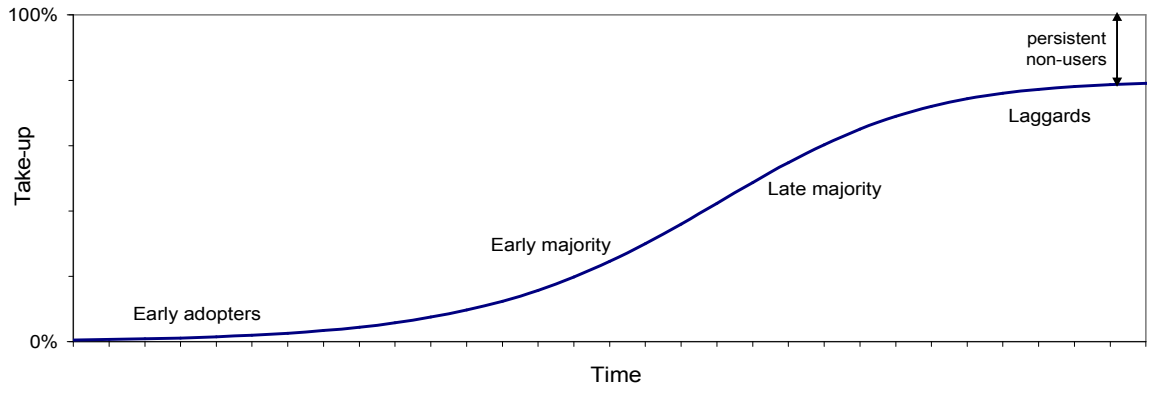
due to the increased intellectual curiosity of scholars but was a response to changing process of social differentiation creating new forms of inequality within the ranks of the college educated, alongside the old kind of inequality between those with and without college educations[101].

The title of this paragraph, however, is on purpose phrased as a question because there is no general consensus on the need for integrating attention to access with pro-active policies to avoid other forms of digital inequalities. Optimistic views based on well-known S-shaped thinking are still widespread. One of the EU financed studies previously referred to, for instance, after a wide review of e-inclusion policies concluded that : '…most e-inclusion policy at trans-national and national levels implicitly or explicitly incorporates a particular innovation diffusion model or set of models'[102]

In the USA, not only conservative politicians but also some scholars, drawing on the history of telephone access, have argued ever since 2000 against legislation to ensure universal access to the Internet because they considered that the combination of market forces and government programs would easily achieve that goal[103].

The figure below is a typical S-shaped curve used to describe the dynamic of technology and innovation diffusion and adoption. Mostly attributed to Rogers who systematised using empirical evidence from diffusion patterns of a great variety of technologies in what became a best seller now at its fifth edition[104], the actual father of the S-Shaped curve is the French Sociologist Gabriel Tarde, who first plotted the curve as early as 1903 to describe the social process of imitation[105].

Exhibit 19: S-Shaped curve of inclusion



Later, in the 1940's, two sociologists, Bryce Ryan and Neal Gross published a seminal study of the diffusion of hybrid seed among Iowa farmers renewing interest in the diffusion of

101 Collins, R., The Credential Society: An Historical Sociology of Education. NY: Academic Press, 1979; Brint, S. G.,. Schools and Societies. Pine Forge Press, 1998;

102 Study # 6 of table 14 reported in Annex 1.

103 See for instance Compaigne, B. M., "Information Gaps: Myth or Reality?" in Compaigne, B. M. (ed.), *The Digital Divide: Facing a Crisis or Creating a Myth*, Cambridge, Massachusetts: MIT Press, 2001, Pp. 105-18.

104 Rogers, E., *Diffusion of Innovations*, The Free Press, New York, 1st edition 1965 (5th edition 2003).

105 Tarde, G., *The Laws of Imitation*, trans. By E. Parsons, New York: Holt, 1903.

innovation S-curve, in which they proposed the now widely used typology of adopters: innovators, early adopters, early/late majorities, laggard[106]. According to Rogers, one can find variations in the slope of the "S", with steeper ones for new technological products diffusing more rapidly and more gradual ones for those with a slower rate of adoption (i.e. the graphic example in figure above). The shape of the slope depends on a number of objective/perceived attributes of the technological innovations explaining between 49% and 89% in the rate of adoption of different *products* (emphasis added), the rest is explained by other factors such as the social network and the role of change agents (influencers) that, however, Rogers does not analyse in any detail. Ever since the first publication of Rogers' book this strand of study has burgeoned, stimulated by its implication for advertisers and management in general, and producing a huge body of study and empirical research. Within this strand one can also include, for instance, the 'Bandwagons and Thresholds' approach[107] and the Social network thresholds approach[108]. There is a more or less implicit assumption, if not in Rogers book itself certainly in the subsequent application of the S-Shaped tool, that over time adoption will most likely reach saturation and the only uncertainty will be about how long this process will take.

Directly or indirectly, such S-Shaped thinking has inspired and still inspires a political and policy view of e-inclusion as a simple issue of access that will be solved over time. It is worth discussing this a bit further before coming back to pointing out the limits and mechanistic nature of S-Shaped thinking, both in its original version and in later refinements. If, in fact, S-Shaped reasoning is correct then e-inclusion policies should be confined to access.

The paradigm here is to assume that a better working of market mechanisms and increased competition would make it possible to reduce the costs and to make ICT products and services accessible by the greatest number, as it happened with fixed telephony[109].

One can argue, for instance, that difference in use of ICT among groups simply reflects their position the S-shaped curve and as they catch up differences will disappear[110]. This is a crucial hypothesis and if proved true would have clear implications for policies. But the questions is as put it by DiMaggio *et al* :

can we assume that different groups are merely at different points on the same curve? Perhaps the most important question facing policy makers is whether disadvantaged groups are simply a few paces behind or, by contrast, are becoming marooned as the rest of the world moves ahead. If the former is true, we can count on

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106 Ryan, B. and Gross, N. 1943, "The diffusion of hybrid seed corn in two Iowa communities", in Rural Sociology, 8 (1943), pp. 15-24.

107 Abrahamson, E. and L. Rosenkopf, "When do bandwagon diffusions roll? How far do they go? and When do they roll backwards?: A computer simulation," Academy of Management Best Papers Proceedings, 50 (1990), pp. 155-159.

108 Valente, T., "Social network thresholds in the diffusion of innovations," in *Social Networks*, 18 (1996), pp. 69-89.

109 The analogy with telephone is correct only for the 20th century due to the new phenomenon of convergence: the rise of cell phones, palm pilots, and other devices that blur the distinction between telephones and computers are re-differentiating telephone access.

110 See for instance Leigh, A. and R. Atkinson, Clear Thinking on the Digital Divide, Progressive Policy Institute, Policy Report, June 2001(http://econrsss.anu.edu.au/~aleigh/pdf/Digital%20divide%20report%20(PPI).pdf) and Norris, P., Digital Divide? Civic Engagement, Information Poverty and the Internet in Democratic Societies. New York, Cambridge Univ. Press, 2001, pp. 30-31

time to bridge the divide; if the *trajectories* are different, public policy must play a larger role to reduce inequality[111].

Let us consider the pros and cons to this hypothesis and its reverse, using both mixture of evidence and argumentation.

9.1.1. Arguments in favour of optimistic scenarios and minimalist policies

First, objectively, Internet penetration in a few years has made advancements that took longer in the case of radio or television and so time will bring universal access and with it widespread and equalised usage.

Second, some differences related to Socio-Economic-Status (SES) (gender, age, region) have diminished such that straight-line extrapolation would suggest convergence.

Third, non-users are correlated with age and a very large proportion of non-users that are 50 or younger expect to become users soon. The conclusion is that in a generation Internet penetration will reach almost 100%.

The next two arguments in favour of the optimistic scenarios can be based on sociological reasoning.

Fourth, so long as the individual characteristics and group memberships with respect to which access is unequally distributed are only moderately correlated with one another, purely structural factors will account for greater equality over time[112]. Access to new technologies is ordinarily associated with advantaged positions with respect to a number of statuses or resources that are weakly or moderately correlated with each other such as income, educational level, place of residence, gender, white-collar professional status, etc. When penetration is low, access is dominated by persons occupying privileged positions on all of these parameters. Statistically, however, a much smaller proportion of the population is privileged with respect to all parameters than is privileged with respect to each. For example, there are many more white-collar employees (male or female, with only high school education, with barely average income, etc) than there are high-income, white, male, white-collar workers with managerial responsibility who are college graduates living in urban areas. As penetration grows, access overflows from the most multiply privileged population groups to individuals who are privileged with respect to some parameters but disadvantaged with respect to another.

Fifth, the tendency describe above can be reinforced by the fact that social relations, as shown by sociological theory and research[113], are ***homophilous*** with respect to many status characteristics and motivational mindset. This means that a low income white collar female worker with only high school education living in a less privileged rural community will share many other characteristics with her relatives, friends and neighbours (low income, even lower

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111 DiMaggio, P., E. Hargittai, C. Celeste, and S. Shaffer, Digital Inequality: From Unequal Access to Differentiated Use, in K. Neckerman (ed.), *Social Inequality*, New York: Russell Sage Foundation, pp. 355-400.

112 This argument draws on the theoretical insights from Blau, P., *Inequality and Heterogeneity: A Primitive Theory of Social Structure*. New York: Free Press, 1977.

113 See for instance Marsden, P. V. "Core discussion networks of Americans." *American Sociological Review* 52 (1987), pp.122-131.

level education, etc), including non-access to the Internet or simply lack of motivation to use it. If, however, for a number of reasons (usage at work, help by community centres, other) she discovers the benefit of using the Internet, then she may serve as a conduit through which information about this discovery flows to others who share those disadvantaging characteristics. So she might convince family members, friends and neighbours (all possibly even less privileged than her) on the usefulness of the Internet and help them use it.

9.1.2. Arguments against optimistic scenarios and minimalist policies

However, a stronger case can be made for the opposite scenario, using recent data, history, and also by underlying the difference between a mere technological product and a medium (or means of communication) used to access services, and comparing briefly old and new electronic media.

First, the data presented earlier for the EU as a whole shows that difference in access, use and skills in terms of SES are still substantial. They have probably diminished consistently during the Internet boom, but the gap is not closing as fast now.

Second, looking comparatively at the history and evidence of usage of other means of communication (i.e. print) it is possible to find a very strong correlation between socio-economic status and access to communication media, and, among those with access, with getting information[114]. It would be quite striking if Internet would be an exception.

Third, S-Shaped trajectories can probably represent well the diffusion of technological products but not the *use* of technology to access services. Television, VCRs and even PCs reached high penetration level when economy of scale reduces prices. No evidence supports this for the *use* of services requiring *steady* financial, time, and cognitive resources[115].

Last but not least, the peculiarities of ICT used as a media and not simply as technology clearly point out that access is not enough and that new risks of inequality are embedded in intensity and quality of use. It is not only a matter of adoption rates, but also a question of appropriation and learning. The rhythm of appropriation and learning is much slower – and much more differentiated among social groups – than the rhythm of expansion of Internet markets. This is an important argument worth illustrating further.

When so called analogue or 'old' electronic media (radio, television) emerged, sociologists and communication theorists positively underlined their integrative and equalising effect, or critically (especially representatives of the Frankfurt School) their negative levelling impact. They reached and reach all different groups with the same messages and contents. No special formal skills are required to at least understand *prima facie* such messages. In a way old electronic media had the opposite effect of another means of communication: the print. The invention of the print united and divided peoples in new ways and created clearly separate informational spheres. Contrary to verbal face-to-face interaction, communication through written text required "codification" and de-codification skills on both sides (transmitter and receiver). Ability to read and write became slowly but steadily also a key instrument for

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114 For a classical analysis related to the political domain see Verba, S., K. Schlozman, and H. E. Brady, *Voice and Equality: Civic Voluntarism in American Politics*, Cambridge, Massachusetts: Harvard University Press, 1995

115 DiMaggio, *et al*, Digital Inequality: From Unequal Access to Differentiated Use, *op. cit*.

certain kinds of better remunerated and more prestigious jobs. On the contrary, radio and television had the effect of partially re-uniting informational spheres. Finally a characteristic of old electronic media is that they were and are mostly related to entertainment and generalist information.

New digital media sharply differ from radio and television and to some extent are more similar to the print in that: a) they unite and divide people in new ways creating new separate informational spheres; b) they are not limited to leisure and entertainment but they are part and parcel of everyday life as instrument of work, of finding information and opportunity, of managing social relations, etc; c) they require skills to codify and de-codify.

Let us consider only three characteristics of new media clearly pointing out how access per se is a very poor indicator of digital inclusion. First, new media are convergent, in two ways: a) that they include text, sounds, images, and video; b) that they can be increasingly used on different converging technological devices. In this respect the difference between, on the one hand, someone who accesses online content through an older PC with no plug-ins using a dial-up connection, and, on the other hand, someone using a state of the art PC with broadband synchronising it with hand-held new mobile phone with UMTS connection used when moving, is quite sharp. Second, new media are increasingly based on a blurring between production and fruition, in the sense that users become producers as it is evident in the new emerging trend termed web 2.0. Here again one can appreciate the difference between a user capable of enjoying the potentiality of web 2.0 and a user having the skills barely sufficient to check mail and perform simple searches. Last but not least, new media produce an abundance of content and information requiring the capacity to select and evaluate sources, in other words, the role of gatekeepers exerted in older media by professionals (journalists, editors, authors) is increasingly falling on the users themselves. While this can be interpreted as a positive democratising effect, no doubt it creates differences between those capable of selecting and evaluating with respect to those who are unable of doing so, because of being less experienced as user of new media and/or of having less the disposition of cultural and human capital.

Overall, the arguments brought so far in support for the rejection of the optimistic view appear stronger and thus support the need for e-inclusion policies still focussing on access but tackling also other dimensions of digital inequalities. The following is, however, an additional and even stronger argument.

9.2. Insights from social theories and research

9.2.1. Limits of S-Shape inspired approaches

Going back to the S-shape perspective, the original Rogers' version is not a useful model to analyse digital inequalities and e-inclusion. Rogers indeed highlights the social nature of adoption but he does not develop these aspects in sufficient detail. In general the innovation diffusion "theory" is mostly a tool for analysts and promoters of technological products to use to understand how and why a technology has been successful or not in the market. So it is not a model nor a theory but a practical tool to interpret data and has a number of short-comings. Firstly, it is too simplistic to analysis the use of a medium such as the Internet and particularly how different social groups approach it. Secondly, and directly related to the previous point, it does not provide any insight into how a particular technology will actually be judged, the

meanings that will be attached and how that meaning will evolve, and on how and why it is appropriated or not.

Many of the EU-financed studies discuss some forms of refinement and adaptation of the S-Shaped thinking and particularly the so called Molnár's model contemplating three stages (access, use, quality of use) of the digital divide [116]. While an advancement with respect to the original version, even this model presents serious limitations.

This or other approaches using stages of digital divide are static and are mostly a conceptual and typological instrument rather than an explanation of root causes and processes. In practice stages overlap both in terms of how individuals move across them and in terms of policies. The phenomenon of ICT drops-out is a case in point showing that there is no clear linear progression. At any given time it is possible to identify EU Member states delivering policies across all the three phases of the Molnár model[117]

More in general digital divide stages approach provide no real theory of processes creating digital inequalities or leading to e-inclusion' and no bridging with the broader arena of social exclusion and related theories and evidence. There is not enough 'granularity' in the variables and the unit of analysis used to depict and assess the various 'digital divides'. Measurement and benchmarking derived from such approaches deploy 'broad brush' variables providing little insights to capture how e-inclusion dynamics work at the local level, and how policies and practices become adapted to 'localisation' factors. Essentially, despite improvements with respect to the original Rogers's formulation, these approaches remain informed by a highly mechanistic theory of technology innovation and diffusion.

We can now turn to insights from broader social theory and research.

9.2.2. Grand Theories of social change

Major grand theories of social change, attempting to define the transition from the industrial order to a new social order, differ in the ways they call and characterise such new order (post-industrial, post-modern, late modernity, post-fordist, risk society, etc). Yet, they have all in common one element: they attribute an important and decisive role to ICT and the new forms of communication associated to them. Below a few of these narratives are only selectively referred to.

Castells characterises the new trajectory of development of our society as one toward "informationalism", shaping a new mode of production termed "informational capitalism" that substitutes industrial capitalism[118]. This produce a new network based form of social organisation[119].

New technologies, thus, catalyse the process of dis-embedding and re-embedding of individuals within the fabric of society which, already before the full advent of new ICT, was

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116 Molnár S., The explanation frame of the digital divide Proceedings of the IFIP summer school "Risks and challenges of the networked society", Karlstad University, Aug. 2003; Molnar, S (2003) The explanation frame of the digital divide", BME-UNESCO Information Society Research Institute.

117 Study # 6 in Table 12 in Annex 1.

118 Castells, M., *The Rise of the Network Society*, Oxford, and Malden, MA: Blackwell Publishers, 1996.

119 Castells, M., *The Rise of the Network Society*, op.cit, and Van Dijk, J., *The Network Society. Social Aspect of the New Media*, London: Sage, 1999.

seen as a characteristic of late modernity[120]. Such processes can lead to a new form of "networked individualism", which can either result in further isolation and exclusion, or instead favours mobility and access to resources. Potential exclusion from relevant networks is the new source of inequalities as opposed to the concept of "exploitation" typical of the industrial order.

It is within this context that the study of digital inequalities must be analysed and the policies of e-inclusion framed. We would claim, actually, that e-exclusion is the quintessential and paradigmatic form of social exclusion in this new social order.

In this respect physical and material access is only a small part of the problem, ensuring access is a necessary condition but not sufficient at all. Social change is pushing more and more at the individual level the competition for being included in terms of jobs but also of social relations, of informed participation to the public debate and, last but not least, of forming one's identity. Intensity and quality of use of ICT play a crucial role in helping individuals position themselves within this new context.

9.2.3. Poverty, social exclusion and inclusion

In the 1970s and 1980s the concept of poverty was slowly but steadily redefined to become multi-dimensional (rather than focussing only on income) and look at social processes of participation in society. Recognising social dynamics and social processes as partly causing and reinforcing poverty, was a step towards discourses and approaches framed in terms of social exclusion (which have ever since the 1980s informed EU anti-poverty programmes and social inclusion policies)..

Theory and research on social exclusion, besides considering structurally shaped access to resources, devote considerable focus on relational issues: inadequate social participation, lack of social integration and lack of power. Society is seen by as a status hierarchy or as a number of collectives, bound together by sets of mutual rights and obligations which are rooted in some broader moral order. Social exclusion is the process of becoming detached from this moral order. The task of social inclusion policy is thus to reinsert or reintegrate people into society. The definition of the socially excluded can take two alternative views:

- Strictly limited only to those who have multiple dimensions of disadvantage that cumulate to form an exclusionary process;
- A wider set of people who may or may not be monetary poor but who are undergoing exclusionary processes.

By way of summarising insights from theory and research on social exclusion the following factors can be identified as paramount:

- Need of a *multi-dimensional* notion of resources;
- Life chances of individuals depend on their resources but also on the *collective* resources of their community;

[120] Giddens, A., *The Consequences of Modernity*, Cambridge:Polity Press, 1994.

- Relational dimensions are as important as distributional one for relationships are themselves a component of human well-being, and their absence is a form of deprivation;

- Need to go beyond static analysis and track the changes in the population at risk the *dynamic processes and trajectories* involved.

Multi-dimensionality, focus on processes and dynamics, attention to the relational dimension enable a more rounded comparison of peoples' potential and constraints and an appreciation of physical and intellectual capacity, education and skills alongside the economic and social constraints at household, community and wider level. Such an approach thus allows incorporation of ICT resources as both potential enhancers and as modifiers of constraints and as sources of new exclusion.

ICT can, for instance, potentially assist in overcoming disadvantages arising from physical disability as individual could access from home information and services without having to move. Conversely if ICT are not accessible instead of decreasing inclusion they actually compound it.

As already seen discussing the grand theories of social change, in a networked knowledge based economy and society ICT are a potential source of human capital, thus accessing and using them can enable individuals to be better positioned in the workplace, or conversely further excluded.

From the perspective of social exclusion / inclusion ICT is theoretically seen as a key influence, as both a risk factor and an opportunity factor at the individual and community level. With respect to this last element, there are several elements to community resources, and one important one is social capital. Some elements of social capital can be seen as locally held resources – such as civic and social trust. Again, theoretically, the potential for ICT in this regard can be seen both as a risk and opportunity. There are risks of differential infrastructure coverage and in communities where individual or household level consumption of ICT services is not possible the issue comes up of how communal services can be provided to ensure access.

However, the potential opportunities for ICT to overcome disadvantage are also considered in the theory. The issue of relational exclusion is most usually discussed in terms of family and of social capital, and, in particular familial and social networks. One of the primary concerns for the overlap between e-inclusion and social exclusion is how far ICT can worsen or ameliorate such processes. The argument for social exclusion occurring from ICT networks is one of both participation and of "in-group/out-group" distinctions. There are thus second order or macro-effects of maximising the size of the ICT networks[121].

9.2.4. Differential access to culture and information

We now move to a field that by analogy is very relevant to the understanding of digital inequalities that is, theory and research on inequalities in access to culture, information and media. Much before the advent of new ICTs in general and of the Internet in particular

[121] The brief synthesis in this section has been based based on the larger and extensive review of this body of theories and research developed by the EU financed study # 5 listed in table 14. Accordingly for the relevant sources see this study.

sociologists, cultural studies and communication scholars had long studied inequality in access to cultural and information goods[122] Such works, beside education (see 2.2.3), has addressed also the possession and use of prestigious forms of culture, linguistic capacities, cognitive style and access to technology[123].

Lessons from this research tradition are applicable to research on inequality in access to and use of ICT and of Internet in particular

(1) **Differentiation principle**. This is illustrated by the reference to education made earlier. In general as education, culture, information become more available, they also become more differentiated in character. The relatively privileged seek advantage by accumulating types that are more richly rewarded (also in the case of education). From this one can put forward the hypothesis that high rates of Internet penetration will increase the likelihood of new kinds of inequality among Internet users that affect the extent to which they reap benefits from going online.

(2) **Knowledge gap hypothesis**. According to the "knowledge gap" theory[124], people of high socioeconomic status are always advantaged in exploiting new sources of information. Because of their privileged social locations, they find out about them first; and because of their high incomes they can afford to access them while they are new. Moreover, schooling provides an initial cognitive advantage that enables the well-educated to process new information more effectively, so that their returns to investments in knowledge will be higher. As a consequence, not only do the socio-economically advantaged learn more than others, but the gap is destined to grow ever larger due to their advantage in access to new sources of information. The lesson of "knowledge gap" research for students of the Internet is that "access" is never enough to ensure productive use. Students of the "knowledge gap" call attention, first, to individual differences (often associated with education) in motivation, salience, and skill; and, second, to the social context of information consumption (for example, the availability of opportunities to discuss new information with peers) as explanations of unequal impact. According to Bonfadelli[125], such factors likely shape the extent to which different kinds of people benefit from the Internet's availability

(3) **Habitus**[126]. This concept has been elaborated by the famous French sociologist Pierre Bourdieu in his cultural approach to class differences. The habitus, resulting from power relations and struggles that reproduce themselves across generations, provides the conceptual categories and frames of action used by individuals to interpret and respond to the social world. The habitus is reflected in consumption patterns that are extrinsic manifestations of class differences of taste and norms. So consumption at the same time is shaped by, and reinforces, norms and cultural styles embedded in class

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122 For an overview see for instance DiMaggio, P., Social Stratification, Life-Style, Social Cognition, and Social Participation, in D. Grusky (ed.) *Social Stratification in Sociological Perspective*, 2nd edition, Boulder, Colorado: Westview Press, 2001, pp. 542-552.

123 DiMaggio, *et al*, Digital Inequality: From Unequal Access to Differentiated Use, *op. cit*.

124 See for instance Tichenor, Ph., G. Donohue, and C. Olien, Mass Media Flow and Differential Growth of Knowledge, *Public Opinion Quarterly* 34 (1970), pp. 159-170.

125 Bonfadelli, H., The Internet and Knowledge Gaps: A Theoretical and Empirical Investigation, *European Journal of Communication* 17 (2002), pp. 65-84.

126 Bourdieu, P. *Distinction: a social critique of the judgement of taste*, Cambridge, Mass., Harvard University Press, 1984.

differences. So, for instance, the familiarity or aversion to use ICT will be shaped by attitudes linked to social position in society, that might be as a result hard to break (in the case of aversion). This cultural oriented analysis of how social position (class or status) shape a mental habitus (in the sense used by Bourdieu) with respect to the perception of ICT should not be overlooked. While Bourdieu's approach can be seen as deterministic and defeatist, it is useful in better understanding how socio-cultural views may shape a resistance and negative (or ambivalent) perception and attitudes towards ICT. Moreover, from such approach one can indirectly derive the insights that in certain cases pools of individuals will never be moved online and should be, therefore, supported by policies to benefit from ICT indirectly (i.e. intermediaries and multi-channel service delivery).

9.2.5. Social shaping and technology domestication processes

Another tradition providing useful insights is that of cultural and social studies of consumption and appropriation processes that emphasises the symbolic nature of goods and their place in culture, focusing on the ritual nature of material artefacts over their practical use[127]. Such a socio-cultural approach frames consumption as an 'active' process of appropriation and interpretation.

Some approaches focus on sub-cultures and patterns of consumption as form of resistance and counter-power strategies[128]. This approach finds support, for instance, in the resistance to use ICT by some marginal and sub-cultural youth groups. Starting from some of the premises of the new socio-cultural approaches to consumption, the analysis of technology and media use by social actors has been studied from a number of approaches that can labelled as 'constructivist theories of technology', such as 'the Social Shaping of Technology' (SST)[129], 'appropriation of technology in everyday life'[130], 'technology domestication processes'[131]. Despite differences in focus among these different perspectives, constructivist theories of technology have in common the contextualisation of technology consumption and uses within cultural and socio-economic setting: the family, the community, workplace, etc. Meanings are

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127 See for instance, Campbell, C. "The Sociology of Consumption," in Miller (ed.) and more in general the Miller, D. (ed), *Acknowledging Consumption: A Review of New Studies*, London, Routledge, 1995.

128 See for instance Fiske, J., *Understanding Popular Culture*, London, Routledge, 1989.

129 See Williams, R. and D. Edge, "The Social Shaping of Technology." Research Policy 25 (1996), pp. 856-899.

130 Among the theorists who have contributed most to the study of everyday life and lead this approach to technology we can certainly mention the work of French sociologist Lefebvre (Lefebvre, H., Everyday Life in the Modern World. London, Allen Lane, 1971). For one of the first application of the everyday life perspective to technology see, Sørensen, Kand A. Berg, (eds), *Technologies and Everyday Life: Trajectories and Transformations*, Report No. 5. Oslo, Norwegian Research Council for Science and the Humanities, 1991. For a more recent anthology see Lie, M. and K. Sørensen, (eds), *Making technology our own? : domesticating technology into everyday life*, Oslo, Scandinavian University Press, 1997.

131 The classic work in this line of research is certainly Silverstone, R., E. Hirsch, et al. *Listening to a long conversation : an ethnographic approach to the study of information and communication technologies in the home*, Uxbridge, Centre for Research into Innovation Culture & Technology, Brunel University, 1990. See also by the same authors Silverstone, R., E. Hirsch, et al., "Information and Communications technologies and the moral economy of the household", in Silverstone, R. and E. Hirsch (eds.),*Consuming Technologies: Media and Information in Domestic spaces*. London, Routledge, 1992; see also the most recent Silverstone, R. and M. Hartman, *Methodologies for media and information technology research in everyday life*, EMTEL Working Paper n. 5. Brighton, CULCOM, University of Sussex, 1998 (this is among the results of the European project EMTEL, see http://www.emtel2.org/)

constructed in use and expectation, but these meanings also are constrained by the setting. SST, for instance, places the analysis of technology in a social environment to understand all social relationships in the context of the material and technical world, which permeates the cultural and social. This is because the way technology and/or a media are used is shaped by our local environment and relationships, and our everyday activities and interests, and personal life goals and themes. This approach to examining consumption of technology investigates how individuals engage with innovations, what they come to mean to them, and how they negotiate the way they shape our lives.

One aspect that can be derived from such theories is that studies of social use of technologies by individuals in their everyday life are different from studies of the use of technology in organisations. This work focuses on use in the home, and family and the domestic environment, or on the local community environment, that is to say the 'private' world. On the other hand constructivist theories also underline that an important feature of new ICT is their boundaries crossing between areas of life such as the home and the workplace in several different ways: the Internet, the PC and the mobile phone are not exclusively professional or domestic products, they are increasingly being used by consumers to blur the lines between home and work.

Further, such theories show a counterintuitive and very important fact: the juxtaposition of the way technologies are often talked about as mechanisms that globalise, bureaucratise, standardise the life of individuals, whilst in reality they are always utilised and embedded in local context. Technology, as any other everyday life object, can provide practical and symbolic supports and the continuity to lives, shaping identities and ways of perceiving the world around. Therefore an important dimension to be investigated is the uses of technologies that are not directly associated with their specific technical function and the practical activities for which they is used. The use of ICT can therefore be both expressive and instrumental, some people may utilise a technology as a tool for achieving ends while others, by integrating the technology more with their self-identity, are using it as a way of expressing that identity.

So there are promising approaches and research traditions that can build up our understanding of the socio-economic factors of e-inclusion as well as an understanding of ICT use in daily life, as requested in the first recommendation of the WG2 final report and in the Staff Working Document *e-Inclusion Revisited*.

This research tradition suggest ways to improve our understanding of the social processes and factors affecting e-inclusion (with a particular focus on most the socially excluded groups). In particular ***micro*** (at the level of individuals and household) and ***meso*** (at the level of communities and/or social network) ethnographic qualitative studies on the perception and understanding of ICT and on the social interactions leading to utilisation and rejection of ICT would be valuable.

Sociology of consumption approaches, looking at constraints, can be integrated with approaches looking at creative consumption by subcultures.This could lead to a better understanding of strategies that could stimulate use of ICT by enabling initiatives to feed positively on sub-cultural identity and leveraging the expressive side of technology. If these strategies were successful, the chances are that technology could also be used instrumentally and support inclusion.

In practice, individuals are constrained by their structural position by the way they perceive and internalise what they consider as their opportunity structure. Therefore by considering ICT, there is both an objective and a subjective side to the opportunity structures faced by individuals. Access initiatives address the objective side, but new initiatives must also focus on the subjective side and help counter passive and pessimist attitudes toward the use of ICT.

The possible implication is that, while continued support for the access dimension can still be the object of policy in the traditional sense, the issue of participation is much more closely linked democratic and governance issues, particularly local governance. The best focus for policy will probably be support and resources for local level participation initiatives carefully targeted at well defined small groups

9.2.6. Network and social capital theories

Constructivist theory points to the importance of local and socio-cultural dimensions of technology and its place in environments other than the workplace. In this respect, an insightful contribution to understanding the social use and utilisation of technology comes from new institutional sociology. This approach studies 'micro' level social interactions, particularly personal influence in social networks and offers a useful insight into how networks and interaction can facilitate or hinder the utilisation of technology and how these processes can be better understood[132]. Additionally social network theory study the way individuals mobilise their networks to achieve sought outcomes, especially finding jobs. In a seminal article Mark Granovetter as early as 1973 showed how the more instrumental and 'weak ties' (that is acquaintances rather than relatives and close friends) are the most powerful ways of finding a job[133.] Recently U.S. Department of Labour estimated that between 70 and 80% of jobs are found through networking[134.].

In a way social network theory is the micro-dimension of the concept of social capital, consisting of social ties and network generating trust and reciprocity and first introduced in the 1980s by American sociologist James Coleman[135.] The concept came to policy-making prominence (being adopted by the World Bank first and subsequently by other international organisations and national government) thanks to the work of Robert Putnam[136.] Where the concept if framed as a characteristic of communities.

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132 For a recent anthology on the theme see B. Wellman and C. Haythornwaite (eds.), *The Internet and Everyday Life*, London, Blackwell, (2002), particularly the chapter "Capitalizing on the Net: Social Contact, Civic Engagement and Sense of Community".

133 See: M. Granovetter, The strength of weak ties, *American Journal of Sociology* 78(May 1973), pp. 1360-1380; M. Granovetter, *Getting a job: a study of contacts and careers*, Chicago, University of Chicago Press, 1995.

134 L. Borghans, B. Weel, and B. Weinberg, B., 'People People: Social Capital and the Labor-Market Outcomes of Underrepresented Groups'. NBER Working Paper No.11985, 2006.

135 J. Coleman, J., Social Capital in the Creation of Human Capital', American Journal of Sociology. Vol. 94 (1998). pp. S95-S120 (reprinted from earlier work).

136 R. Putnam, R. *Bowling Alone: The Collapse and Revival of American Community,* New York, Simon & Schuster, 2000.

The insights from social network theories and social capital are increasingly being applied to the use of ICT[137]. A recent report from IPTS provides an extensive review of the relations of social capital and e-inclusion[138].

Insights gained from approaches analysing social networks, communities and influence mechanisms lend support to the idea that local intermediaries, such as outreach workers and members of voluntary organisations, could play a crucial role in stimulating the use of ICT. Support for, and use of these, intermediaries by ICT initiatives could be an important way of reaching socially excluded groups through existing networks.

9.3. Insights from emerging theories of digital inequalities

This chapter stated that a full-fledged and holistic theory of digital inequalities and of exclusion/inclusion processes does not yet exist. This statement can be confirmed on the light that one explanation is that there is still a lack of in-depth empirical evidence available to test hypothesis on causal relations. There are, however, a few promising exceptions where a more sustained attempt at theorising is visible[139]. Among these contributions two are worth discussing further below since a synthesis and integration of them inspire the model presented in section 9.5.

The first is the contribution of Van Dijk[140], whose most fruitful insight concerns the typology of digital competence. We briefly summarise this typology below:

Operational competences. The skills needed to use a PC and basic software including the browser to navigate the Internet. These mostly coincide with the topics of basic training courses standardised following the inspiration of the European Computer Driving License (ECDL). Public policies supporting training have mostly focused on these skills, overlooking informational competences.

Informational competences. Intended as the capability to retrieve and manage effectively the information and contents available. The less attention given to these forms of competence is probably due to their more abstract nature resulting in the difficulty to standardise them into training courses. Informational competences are, however, crucial as they enable users to

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137 See for instance: B. Wellman and C. Haythornwaite (eds.), The Internet and Everyday Life, London, Blackwell, 2002 (particularly the chapter "Capitalizing on the Net: Social Contact, Civic Engagement and Sense of Community"); M. Huysman and V. Wulf (eds.) Social Capital and Information Technology, Massachusetts, The MIT Press, 2004.

138 D. Zinnbauer, *What can Social Capital and ICT do for Inclusion?*, Sevilla, European Commission, Directorate-General Joint Research Centre, Institute for Prospective Technological Studies, 2007.

139 These sources are: Norris, P., Digital Divide? Civic Engagement, Information Poverty and the Internet in Democratic Societies. New York, Cambridge Univ. Press, 2001.; Kling, R., Technological and Social Access on Computing, Information and Communication Technologies, White Paper for Presidential Advisory Committee on High-Performance Computing and Communications, Information Technology, and the Next Generation Internet, 1998; Liff, S. e A. Shepherd, An Evolving Gender Digital Divide?, Oxford Internet Institute, Internet Issue Brief No. 2, July 2004 (http://www.oii.ox.ac.uk/downloads/index.cfm?File=resources/publications/IB2all.pdf); DiMaggio, P., E. Hargittai, C. Celeste, and S. Shaffer, Digital Inequality: From Unequal Access to Differentiated Use, in K. Neckerman (ed.), *Social Inequality*, New York: Russell Sage Foundation, pp. 355-400; Van Dijk, J., *The Deepening Divide. Inequality in the Information Society*, London: Sage, 2005.

140 Van Dijk, J., *The Deepening Divide. Inequality in the Information Society*, London: Sage, 2005.

evaluate and use what they find. Within such competence a further important distinction can be made between:

Formal informational competences. These refers to the capability to move around the way information is organised in terms of navigation (i.e. mustering a single web site understanding its different structure and using the tool to move within it). These can be acquired and improved as a result of repeated use.

Substantial informational competences. They concern the capacity to search, select, know and evacuate information. It is a substantial competence the ability to evaluate the credibility of a web site almost intuitively, or the capability to logically structure a search and then follow the right thread of hits. This sort of competence is harder to achieve only as a result of usage and is more related to individuals pre-existing cognitive and cultural assets.

Strategic competences. These are needed to define the purpose of use within the vast universe of available possibilities with the aim of improving one's position in terms of desirable benefits and outcomes.

Probably the contribution coming closest to provide a full-fledged theory of digital inequality and of related processes of exclusion/inclusion is that by Di Maggio *et al*[141], for it proposes a framework and a number of preliminary hypothesis to: a) identify different dimensions of digital inequalities; b) put them in relation with individual status characteristics and other possible antecedents; and c) theorise the relationship between dimension of digital inequalities and difference in individuals capacity to obtain desirable outcomes from use of ICT (human capital, social capital, income, etc). The authors do so starting from an over-arching hypothesis: *as was the case for education, it is expected that high rates of Internet penetration will not eliminate inequality so much as increase the salience of new kinds of inequality --- inequality among Internet users in the extent to which they are able to reap benefits from their use of the technology.* The dimensions of inequalities, further developed in section 9.5, identified by these authors area: a) technical means of access; b) autonomy of access/use; c) skills[142]; d) social support; e) purpose of use.

The basic used in section 9.5, from these authors is about a meta level in that they propose the comprehensive logic framework and dimensions that a theory or model should include.

Unfortunately the empirical evidence on the various causal relations that can be derived from the two contributions briefly discussed above is very limited.

Concerning technical access apparently the same factors that are associated with being online in the first place (income, educational attainment, race, and metropolitan residence) predict

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141 DiMaggio, P., E. Hargittai, Digital Inequality: From Unequal Access to Differentiated Use, in K. Neckerman (ed.), *Social Inequality*, New York: Russell Sage Foundation, pp. 355-400.

142 Skills are here understood in the way socio-linguists define "communicative competence (See for instance Hymes, D. *Foundations in Sociolinguistics: An Ethnographic Approach*. Philadelphia: University of Pennsylvania Press, 1974), rather than simply as a set of notions that can be acquired through formal training. Such competence can be defined as the capacity to respond pragmatically and intuitively to the tasks required to exploits the potential of using ICTs in general and Internet in particular.

having high-speed connections.[143] Field research on how technical means of access influence quality and outcome of uses is still scattered and anecdotal.

Educational attainment, income, and other status characteristics are all associated with having Internet access at home. Thus autonomy of access/use leading to greater benefits is apparently correlated to SES.

We know very little about what explains inequality in the competence needed to use ICT effectively in general and on the ability to find and use information online in particular. The EU data on digital literacy show a correlation with SES, but the way digital literacy is measured covers only the most basic skills corresponding to the operational competence in the Van Dijk typology.

Insightful in-depth field studies but with limited possibility of generalisation suggest that flashy software implemented with little attention to human factors renders many sites accessible only to sophisticated users with state-of-the-art hardware and software and sophisticated navigation skills[144]. As stated by DiMaggio *et al*, while the literature on usability is burgeoning, due to the peculiar interest and settings of various research studies, there is little evidence about how and why skill is related to personal characteristics[145]. Studies on self-reported skills would suggest that they are correlated with education as less educated individuals self-report lower level of confidence in their digital skills[146]. Yet a field study based on participatory observation revealed that the skills self- reported at the beginning by the participants did not coincide with the actual capability demonstrated during the tests.[147]

While not enough empirical evidence is available to analyse the correlation between individual status characteristics (or SES) and the Van Dijk typology of competence, the following hypotheses can be laid out (also considered in section 9.5).

First, operational competences and formal informational competences can be achieved through usage, social support and can be increased by policies supporting training or social support. Therefore, though initially they may be correlated to inequalities in status characteristics, these inequalities will decrease over time.

Second, substantial informational competences and strategic competences are expected to be strongly correlated with individual status characteristics and more difficult to disappear over time only as a result of usage, social support and current policies supporting training. Moreover, since these two types of competence are crucial in achieving benefits they are among the main source of risks of new forms of exclusion. Accordingly, in certain areas policies should aim to support individuals and groups lacking such skills indirectly, for instance, using ICT to better enable intermediaries and to provide e-enabled multi-channel service provision of public services.

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143 See for instance Mossberger, K., C. J. Tolbert, and M. Stansbury, *Virtual Inequality: Beyond the Digital Divide.* Washington, D.C.: Georgetown University Press, 2003.

144 Hargittai, E., Serving Citizens Needs: Minimizing Online Hurdles to Accessing Government Information." IT Society 1 , 2003.

145 DiMaggio, P., E. Hargittai, C. Celeste, and S. Shaffer, Digital Inequality: From Unequal Access to Differentiated Use, *op. cit*.,

146 See for instance Bonfadelli, H., The Internet and Knowledge Gaps: A Theoretical and Empirical Investigation, *op. cit.*

147 Hargittai, E., *How Wide a Web: Inequalities in Access to Information Online.* Ph.D.Dissertation, Sociology Department, Princeton University, 2003.

With respect to these two hypotheses evidence is brought about from recent and yet unpublished field research, whose findings support the fact that substantial informational competence is strongly associated with education and gender[148]. The research was conducted with 80 individuals differentiated by level of education and gender, to whom several tasks were assigned to perform on the web (the experiment entailed both participatory observation and analysis of log files). All subjects had the same level of access and intensity of usage of the Internet (they used it everyday at work and at home) and the same type of technical access. So the experiment isolated the effects of level of education and gender. Using Van Dijk typology some tasks assigned entailed: a) informational formal competence: searching something within a single website, so requiring simply navigation skills that can be acquired through repeated use; b) informational substantial competence: answering questions correctly and in the shortest possible time by searching the all web, thus requiring the logic capacity to shape a search and the cognitive ability to evaluate the relevance of the sources, etc. The finding are quite interesting: no significant difference emerged among the various sub-groups (high education men; high education women; lower education men; lower education women) with respect to task requesting to find something within a single website. This confirms the fact that informational formal competence is shaped mostly by intensity and frequency of use (which was the same for all subjects). On the contrary being highly educated and men is clearly a predictor of performing faster and with fewer errors the task of answering question through a search of the entire web. Therefore substantial informational competence appears to be strictly correlated with two status characteristics such as education and gender.

9.4. Modelling e-Inclusion

9.4.1. Defining key concepts

At EU level and within EU Member States, research and policy have been framed in terms of e-inclusion and e-exclusion, clearly mirroring the broader research and policy field of social exclusion and social inclusion. In some academic contributions, especially from North American scholars, the terminology is more often one of digital inequalities and differentiation process. These two approaches, however, can be easily reconciled.

Social exclusion is a process built on social inequalities and leading to the marginalisation of individuals and groups as regards societal goals. Social inequalities are the basic roots of social exclusion, occurring when individuals or social groups are left behind or do not benefit from equal opportunities to achieve broadly defined desirable societal goals. Social inclusion is also a process and but it is not simply the symmetric counter part of social exclusion. In fact social inclusion refers both to social processes developing autonomously and to policy goals and interventions that can start, stimulate, support and catalyse such processes. So social inclusion, when it occurs, is a process by which social inequalities decrease and social participation increase also as a result of policy intervention.

By analogy the same applies with some further specification to the field of e-inclusion /e-exclusion. E-exclusion is a process potentially resulting from digital inequalities. Digital inequalities in turn present a two-fold relation with social inequalities: a) digital inequalities are to a large extent shaped by broader mainstream social inequalities; b) digitally inequalities, if not tackled, can potentially exacerbate existing mainstream social inequalities. If the latter case occurs then digital inequalities results not only in processes of e-exclusion

[148] Unpublished ongoing research material obtained by the author of this part of the IA.

but may also contribute to increasing social exclusion in general. Therefore, e-inclusion is both the symmetric counter part of e-exclusion and also a policy objective and programme aiming at reducing digital inequalities thus directly or indirectly contributing to the process of social inclusion as a whole. So recalling the outset of this IA: *e-inclusion was defined in the Riga Ministerial Declaration as meaning both inclusive ICT and the use of ICT to achieve wider inclusion objectives. In other words e-inclusion refers to the extent to which ICT helps to equalise and promote participation in society at all levels (i.e. social relationships, work, culture, political participation, etc.)*.

Having explained the above, it must be noted, however, that the policy discourse and research programmes on social exclusion / social inclusion emerged in Europe when the understanding of the underlying basic social inequalities was fairly consolidated after a decades-long tradition of social research. Accordingly social inequalities were a consolidated building block, and, thus, the analysis of social exclusion/inclusion could focus more on processes and trajectories.

The same does not apply to our field for the theoretical understanding of, and empirical evidence on, digital inequalities and their relations with social inequalities and exclusionary processes is far from consolidated. It is for this reason that a special consideration is here given to digital inequalities. Their understanding is, in fact, a prerequisite to proceed toward the analysis of processes of e-exclusion/e-inclusion and of their contribution to broader issues of social exclusion/inclusion. In particular the model proposed in section 9.5 is mainly an explanation of digital inequalities that serve the purpose of underscoring some key processes and risks of exclusion from which a systematisation of e-inclusion policy is derived in chapter 2.

9.4.2. Three interacting domains

A model of digital inequalities and related processes of exclusion/inclusion should include three broad domains: a) the demand side; b) the supply/market side; c) the institutional side. This distinction is, however, clear cut only on paper as these three dimensions heavily interact with each other. This recognition is the first building block of our model.

Before presenting the model in the next paragraph, these three domains and their possible interaction are preliminarily discussed (for a number of examples of these domains see also section 1).

The **demand side** refers in general to individuals and groups and in particular to their status characteristics (available resources), behaviours (motivations, attitudes, objectives), and social relations. For the sake of simplicity, a conceptual map of status characteristics is provided to include along side the more traditional parameters of Socio-Economic Status (SES) also physical and intellectual capacity[149]. So status characteristics (or SES hereafter) include: income, education, cohort (age group), socio-professional and employment status, broadly defined abilities/disabilities, place of residence, citizenship status (citizens, permanent alien residents, alien with temporary residence rights, etc) and/or ethnicity.

[149] In this respect we adopt Sen's concept of function and capacity that appreciates physical and intellectual capacity, education and skills alongside the economic and social constraints at household, community and wider level (Sen, A., *Commodities and capabilities*, Oxford: Oxford University Press, 1999).

Some of these characteristics are ascribed at birth (gender, ethnicity, genetic disabilities), others are irreversible (age and acquired disabilities), some are hardly modifiable by the individuals themselves (access to citizenship and secure residence rights are defined by governments). Income, education, employment status and place of residence can all be changed as a result of individual efforts, but certainly not always easily and in the short term. So we can deem them as relatively 'structural'.

Further an hypothesis can be advanced in that SES influences access to, use of, and capacity to gain benefits from, ICT products and, especially, services. Such individual status characteristics: a) in some cases cannot be changed and can be impacted by policies only indirectly potentially also through ICT (i.e. in the case of ageing and disabilities); b) in other cases can be impacted directly by policies falling outside the domains of e-inclusion but ICT can play an ancillary role (i.e. employment policies supported by inclusive online job searching and matching applications)

But the demand side is not exhausted by these more structural dimensions and explaining digital inequalities or e-inclusion only in terms of them would be static, overly deterministic and would overlook individual behaviours, as well as the dynamic of social relations. On the motivational/attitudinal dimension, for instance, it is possible to identify a number of reasons why ICT are not used even by individuals who are not disadvantaged with respect to all status characteristics and potentially have at least some resources for gaining access and using profitably ICT. Preliminarily the following can be listed: a) lack of knowledge about potentially useful services (which targeted awareness raising campaign or support to local level intermediaries or social influencers can tackle); b) perceived lack of skills (which can be overcome through targeted support); c) concerns about privacy and security (which refer both to the supply and institutional side) d) having tried but found a lack of services targeted to their interests (which refer to the supply side); e) lack of linguistically and culturally suitable content (this refer specifically to the issue of cultural diversity and call into question both the supply and the institutional side) f) frustration from unsuccessful attempt due to the technical means of access and/or to low usability and/or, for people with disabilities, lack of accessibility (which all refer also both to supply and institutional side).

The dynamic of social relations can have positive impacts and can be supported. Social support from relatives or friends, for instance, can help individuals with lower score on some of the parameters of SES become aware of the benefits of ICT and use them. Even in a community that can be characterised as disadvantaged as whole if one or more individuals start using ICT then they can become a social conduit by convincing family members, friends and neighbours (all possibly even less privileged) on the usefulness of using ICT and help them do it. This can be evidently supported by policies at local level.

So looking at the demand side, e-inclusion policies can indirectly impact individual status characteristics and can directly support behaviours and the dynamic of social relations conducive to e-inclusion and steer the supply side in desired directions. Yet one should also realistically recognise that, both as a result of a situation of combined multiple structural disadvantages or simply because individual choices not to use ICT, there exist at any given time a pool of individuals who will never use ICT devices and will never go online. This does not mean that policies should abandon this pool of individuals, rather they should be framed in such a way to have them benefiting indirectly from ICT through a variety of approaches that will be discussed later.

Much too often reports on e-inclusion limit their focus to the demand side of individuals access to resources and behaviours, overlooking the so called "social organisation of digital inequalities effect". A full understanding of inequalities in access to, and use of, ICT require the understanding of the interaction between individuals resources and behaviours on the one hand, and market (supply side) and institutional forces on the other hand.

Within the **supply side** the following is included: a) the private sector as producers of ICT product and provider of ICT based services both in terms of both access (Telcos) and use (all private sector using ICT to provide services); b)other civil society actors providing information and other services online; and c) naturally governments in their role of provider of ICT enabled public services.

The **institutional side** refers to the state firstly in its legislative and regulatory functions, and secondly as a source of policies.

Markets and state forces continuously transform and re-shape the field and contribute to make e-inclusion a moving target (either closer or further away). For instance, basic access in terms of the technical equipment available to users (type of connection, hardware and software) becomes insufficient in as much as suppliers of online services design them in such a way that effective use requires faster connections and more up-to-date hardware and software. Even when users may have the most sophisticated connection and equipment they might still become "Internet drops out" as a result of frustration with services usability due to the lack of attention to the human/computer interaction and ergonomics dimension of the side of the designers. This is, evidently, even more salient for people suffering from various forms of functional impairments (genetic and/or acquired disabilities or decreased functional performance due to ageing) and who do not find accessible services and devices. Potential users may not become actual users because services are not targeted to their needs and interests, a fact that is highly relevant for online public service provision. Others may not find culturally and linguistically suitable content, both because of the way information is searchable online and because of lack of adequate resources to supply such content. Niche cultural content for ethnic minorities is not always adequately catalogued in the mega-portal and popular search engine that are the dominant avenue to find and use online services and information. In addition those potentially capable of providing such content do not have the resources do so, while the limited pool of potential users do not represent a sufficient market incentive for mainstream suppliers to cater such users.

As testified by the data on persistent geographical difference in access and use, liberalisation and increased competition and state intervention have been so far insufficient to ensure that market suppliers cater rural areas in the same way they do with urban ones. Finally, the interaction between the strategies of large ICT corporations and government regulation can restrict or expand the definition of intellectual property rights and, thus, shape access and use of ICT products. This selective and illustrative only list clearly points out that these supply side factors can be shaped and re-shaped by government legislative and regulatory interventions and/or by softer policy interventions aimed at stimulating the supply side adopting practices that would help lowering barriers for digital inclusion.

9.5. A Heuristic Model of Digital Inequalities and inclusion/exclusion outcomes

The basic components of the models are:

(4) Individual status characteristics (or SES) and other social situational factors (input);

(5) Dimensions of digital inequalities (explanatory variables);

(6) "Social organisation effect" including supply side and institutional side influence (intervening variables)

(7) Persistence and breadth of use (output)

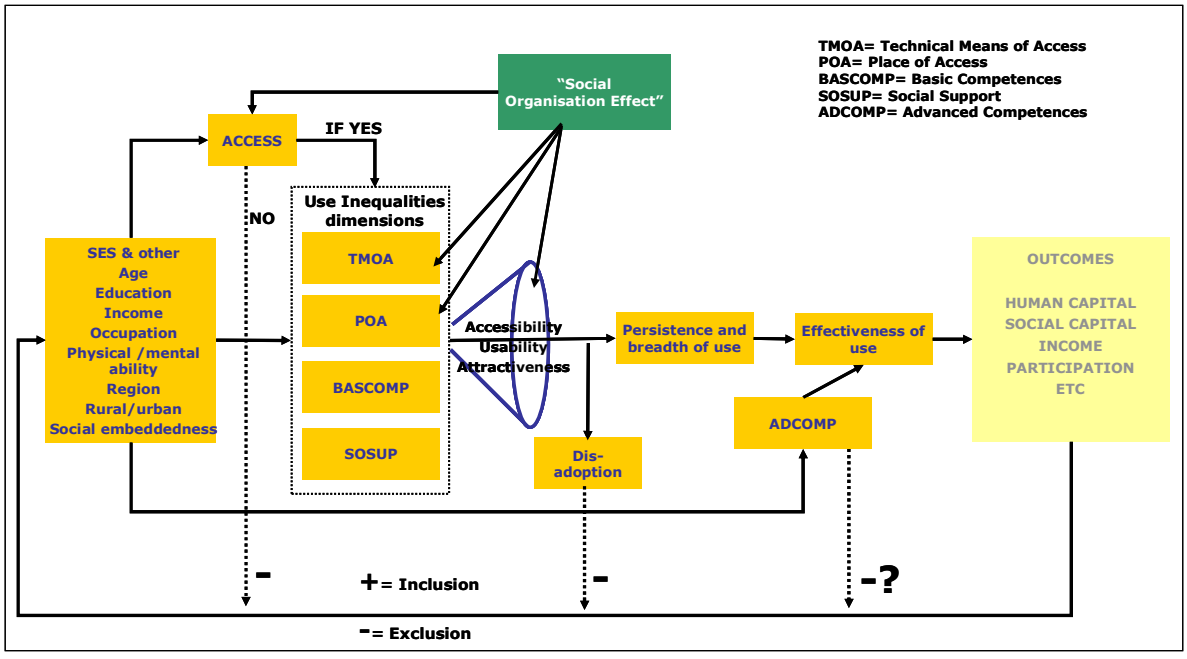
(8) Effectiveness of use (immediate outcome)

(9) End outcomes in terms of relatively improved or worsened income, improved access to entitlement (welfare services), health related services, and other public services, human capital, social capital, broadly defined participation;

As seen the end outcomes are a function of effectiveness of use of ICT thus only apparently limiting the field of e-inclusion only to the direct use by individuals of ICT. As a matter of fact the model helps identify the limits of policies merely aimed at making all groups at risks full users of ICT and point into the direction of the a different axe, namely the use of ICT to indirectly benefit groups at risk. But let us start from the model first and come back to this issue at the end of this paragraph and more fully in the next paragraph.

A snapshot of the model is presented in the figure below, and in its simplified logic can be illustrated as follows. SES together with intervening factors from the supply and institutional side impact access and four other dimensions of inequality concerning use. These four dimensions and again intervening supply side factors in turn shape the persistence, volume and breadth of use. If use persists and does not lead to dis-adoption it will gradually increase the effectiveness and quality of use. Desirable outcomes are seen as a direct function of effectiveness of use. Finally, the input arrow going back from outcomes to the SES represents the process of inclusion or exclusion depending on the sign of the aggregate outcomes.

Exhibit 20: Heuristic Model of digital inequalities



Both the graphic snapshot and the synthetic illustration above simplify some of the complexities of the model, such as the feed-back loop among variables (i.e. persistence of use, besides shaping effectiveness of use feed back into competences as repeated usage should increase some skills) and also the possible correlations among the different dimensions of use inequalities and their different positions in the logic of the model. In the figure these dimension are placed all in the same position but in fact some may be antecedents of others.

This is not done in the figure, firstly for the sake of visual clarity and for space constraints, but mostly because empirical evidence is not available to further specify all possible causal direct and indirect relations and so for our heuristic purposes is enough to draw basic general relations and hypotheses that future research will have to better specify. The same reasoning apply to the possible critique to the fact that SES and situational factors have all been aggregated in one box, as are the very different players that could be distinguished within the supply side and the institutional side and that have been grouped together in the "social organisation effect" box. Parsimony, limited space and lack of more granular empirical evidence explain these simplifications.

Having clarified the above, the components of the model can be described in more details and some more elements that might not be evident from the graphical representation can be discussed, moving from the left end side of the figure to its right end side and back discussing the main feed back arrow going from outcomes to SES.

The first block include in one box the so called SES in a broader way together with other social situational factors that for the sake of simplicity can be limited here to degree of individuals embeddedness or dis-embeddedness from network of social relations. The other elements in the box have already been discussed earlier and require no further illustration.

Next come the dimensions of inequalities with **access** as the first one. Access inequality can actually be conceived as: a) lack of access due financial and/or residential reasons and b) non access for lack of motivation to use; c) non access for lack of awareness. SES certainly influence all these forms of access inequalities. Lack of access also results from the interaction between the supply and institutional side in as much as lack of competition keep prices for basic access too high or market failure prevent coverage of rural and remote areas. The supply side can also influence non access as long as the services provided do not address needs and interests of potential users, and this is particularly relevant for the online provision of public services. Lack of awareness can naturally be easily tackled by policies. One cannot rule out, however, that non access is also an individual conscious choice that cannot be impacted. At any rate, regardless of the reasons behind access inequality, the figure include the hypothesis that inequality of access feed with a negative impact onto the arrow going back from the outcomes to the SES box and is, thus, a source of exclusionary processes.

The next four dimension of inequalities all concerns use and assume that access is available and that, though sporadically, ICT in general and Internet in particular are used. It is worth noting that the first two of these dimensions of digital inequality refers at the modality of access, a topic too often overlooked.

We illustrate these four dimensions below adding observation and hypotheses on their influence on use and on how they are impacted by other factors:

(1) **Technical means of access** (hardware, software and quality of connection). We assume that persistence and breadth of use is a direct function of the quality of the technical means of access available to individuals. Slow connections and limited software capabilities constraint the breadth of use, cause frustration and can weaken motivation thus possibly causing dis-adoption. Moreover, constraints on use decrease the chances of acquiring new skills through use. The supply side impact on this dimension to the extent to which the way online services are provided and designed require or not faster connections and up-to-date hardware and software to use them. Government intervention can shape this by steering private sector supply in the right direction and forcing itself to provide public services online as to minimise exclusion due to technical equipment. This dimension is further influenced by supply and market structure with respect to the cost of hardware and software. Moreover, the interaction between market and government can restrict or expand the definition of intellectual property rights and thus shaping access and use of ICT products and particularly software;

(2) **Place of access and use**. This relates to whether ICTs are mostly accessed freely at home, or for limited time in public places or under some constraints at work. This dimension matter as it defines the degree of autonomy of use. We propose the hypothesis that greater autonomy of use impact positively persistence and breadth of use and also directly effectiveness of use. Market and government regulation influence this dimension in as long as competition and incentives lower the cost of home access to the Internet and ensure coverage at affordable prices also in rural and remote areas;

(3) **Competences**. Here following Van Dijk typology of competences discussed before, basic competences (including operational competences and formal informational competences) can be distinguished from advanced competences (including substantial informational competences and strategic competences). The former influence the chances that use persists and grows in breadth and eventually result in the effectiveness of use. Basic competences can be expected to grow with use and can be achieved also through social support (see *infra*). Thus, while basic competences are correlated with SES, use can be expected to fill existing gaps. Advanced competences, which on the contrary are more strongly correlated with individuals cultural and cognitive assets and are harder to achieve only through use, impact directly individuals' capacity to use the Internet for the purposes they choose (the latest stage of effective use);

(4) **Social support**. Social support from relative, friends, and colleagues can help late adopters persist and improve in their use, thus counterbalancing potential skills gaps.

Between these four dimension of inequalities and the persistence and breadth of use the figure insert optimistically as an amplifier, but it can actually work as a bottleneck, the intervening impact of the supply and indirectly, as a countervailing force, of the institutional side. This refers mostly to the accessibility and usability of ICT and to some extent to the attractiveness of services provided through them.

Even when, despite disadvantages in SES and in the digital dimension of inequalities, users may still be strongly motivated to use ICT, they nonetheless may end up to drop out and be excluded because of: a) lack of accessibility specifically for individual with dire physical and cognitive disabilities; b) more general lack of usability hindering individuals with lighter but

still relevant disabilities due to ageing (but also physically and mentally able but less experienced users).

Moreover, it must be stressed that some disabled and elderly people may have a privileged position with respect to SES and could thus profitable use ICT provided that they are accessible and usable. Lack of accessibility and usability thus lead to clearly evitable new forms of exclusion and prevents using ICT to support these groups making welfare and other social assistive activities more effective and less costly. So lack of accessibility/usability is one of the major and most important sources and risks of exclusion and, paradoxically, not sufficiently addressed so far, despite the fact that it is potentially much easier to impact than most of the other situations and variables discussed here. While certain cognitive and functional impairments may be difficult to respond to, strong steering and regulatory policies and efforts from the supply side could effectively reduce the problems of accessibility and usability and really confirm the amplifier form used in the visual representation of our model.

The actual attractiveness and inclusiveness of ICT, especially of online services, depends on the capability to personalise and target the offer to the specific needs and interests of different groups of users. For what concerns the private sector this is something increasingly done (though often with lack of accessibility and usability) and, at any rate, cannot be influence by government intervention in the same way as accessibility can. So the question of making services more attractive, targeted and personalised is something that can be done directly by governments for what concerns their own ICT enabled services. This falls within Riga's area of "Inclusive e-Government" and it is a very strategic and important one. It concerns the transformation of public services through ICT to help vulnerable people become more self-sufficient and empowered in their dealings with government, better achieve what they are entitled to, as well as improve their awareness of, and access, to health thorough e-Health services.

Going back to the logic of the proposed model, depending on the interaction among the different forms of inequalities and between them and the "social organisation" factors, use of ICT may either persists and expand or lead to dis-adoption. In the latter case the hypothesis can be made (negative sign feed into the back arrow from outcomes to SES) that this contributes to exclusionary processes. If use persists and expands an hypothesis can be advanced in that the quality of use increase and turn into effectiveness of use that is the increasing capacity of individuals to search, evaluate and use information and services for the purpose they choose. This should then lead to achieve the sought individual benefits, which in the aggregate becomes socially and policy desirable end outcomes. This last link is a reasonable assumption that, however, needs further research to be empirically substantiated.

Naturally the link between effectiveness of use and benefits/outcomes depends on the purposes of use, which from a public policy perspective are not entirely neutral. Most desirable use are those for the enhancement of human capital, the development of social capital, political participation, for better dealing with government, and for improving health awareness and access to health services. On the other hand, increasing the number of people that can use ICT for entertainment and consumption purposes only would also be a noteworthy result.

Avoiding patronising and overly pessimistic assumptions it can be expected that individuals disadvantaged with respect to SES can improve the effectiveness of using ICT for purposes of advancing their human capital and other socially and policy desirable outcomes. Nonetheless

the use of ICT for such purposes is expected to be strongly correlated with advanced competences, which in turn are strongly correlated with SES. This means that in relative terms the end outcomes might not reduce inequalities and increase inclusion only as a result of having increased the pool of individuals using ICT, which leads us to the final element of the model that need further discussion, that is the already mentioned back arrow from outcomes to SES.

As anticipated this arrow represents a feed back in terms of inclusion or exclusion, and in this respect it is worth noting that the outcomes might feed negatively into the arrow, thus amounting to aggregate exclusionary impacts or very moderate inclusion, for two reasons. The simplest and most intuitive ones are the negative signs associated with arrow coming from the boxes of "no access" and of "dis-adoption". The "no access" case has already been discussed and for the instance of "dis-adoption": effectiveness of use will not occur and will not produce positive outcomes thus contributing to further exclusion for groups at risks and to new risks of exclusion for individuals who are disadvantaged in only one or two of the status characteristics.

The second reason is more subtle: outcomes can be negative in relative terms for, despite persistent and increasingly effective use, groups at risk are less able to achieve benefits from use and continue to fall behind more endowed individuals and groups. This possible process is visually represented by the "-?" notation associated to the broken arrow going from the "advanced competences" box toward the main back arrow. Individuals better positioned in terms of SES have higher level of advanced competences, which are harder for others individuals to achieve only thorough use. These more advanced competences enable them to better select the purpose of use more conducive to socially and politically desirable outcomes and thus further distancing less privileged individuals.

Regardless of the reasons behind them, all hypothesized and possible negative feeds to the back arrow point in one direction: ***contribution to inclusion will not come only by helping individuals using ICT but also by using ICT to help them***. This is an approach that is gaining increasing support in some Member States. In the UK for instance the digital inclusion as a policy domain and objective is defined as "the use of technology, either directly or indirectly, to improve the lives and life chances of disadvantaged people and the places in which they live"[150]. Moreover, it must be stressed that this duality of e-inclusion policy is clearly recognised in our definition, stemming from the Riga Declaration where it is affirmed that "e-inclusion" means both inclusive ICT and the use of ICT to achieve wider inclusion objectives".

[150] Digital Inclusion Team, *The Digital Inclusion Landscape in England*, London, March 2007, p. 5.

10. ANNEX 4: E-INCLUSION POTENTIAL IMPACTS

10.1. Avoiding risks

First, the most straightforward potential impacts of achieving e-Inclusion consist in eliminating the risks of further exclusionary processes deriving from a failure to effectively address access and use inequalities. These are well known and, as they do not require further discussion, are listed below:

- Increase in the social costs of social exclusion;
- Persisting barriers to access and use (availability, affordability, accessibility, usability) even for those potentially willing and most in need of benefiting from ICT (Inequality and Discrimination);
- Increased social isolation, social and political apathy deriving from less access to information, contents, social relations (decreased Social Capital, Participation, Social cohesion);
- Processes of relative de-skilling and decreased employability as ICT skills becomes an increasing requirements to find a job and/or advance in the career: groups at risks, either do not possess them or despite use continue to fall behind vis-à-vis more privileged group (relative decrease in Human Capital);
- Foregoing the potentialities for more health awareness and access provided by increasingly widespread and innovative e-Health services (Human Capital)
- Being cut out from the potential benefits of innovative public services, which misses the opportunity to increase trust in government (Participation and Social Cohesion);
- Relatively worsen consumer welfare.

10.2. e-Inclusion Positive Impact Framework

Policies must aim at increasing e-Inclusion, not only because failing to do so would mean letting risks turning into actual processes of exclusion, but especially to fully seize the opportunities ICT offer for economic growth and social cohesion.. Following the conceptualisation of the root causes and drivers of digital inequalities / opportunities (see **1.2** and **Annex 3, par. 9.4**) a preliminary "e-Inclusion Positive Impacts Framework"(eIPIF) of the impacts that could derive from exploiting the potential of e-Inclusion is provided here. This is based on theory-driven hypothesis indirectly derived from general economic models and sociological analysis. The eIPIF is synthesized in the table 2, where a sequence of micro (on individuals and on single organisations/institutions), meso (on sectors) and macro-systemic impacts are linked to the different uses of ICT. This framework start from the hypothetical assumption that e-Inclusion has increased in two ways: a) increase in the number of digitally included, empowered and motivated citizen; b) ICT enabled intermediaries and ICT supported policy delivery helping those who will not want or cannot become digitally included in the first place to become better empowered and included anyway. It must be stressed that the various links between usage of ICT and the impact are presented in the table as separate and

linear for the sake of simplicity and brevity. In practice, however, they are compounded and interacting with each other, in other word the relationship between the potential impacts is not one of simple adding up but rather one of multiplying effects. It is evident, therefore, that policies approaching in an integrated way all areas supporting would have a multiplier effect reaching higher impact than under sectoral approaches. The framework identify three impacts on GDP growth:

(1) Increased take-up of transactional e-Government service, improve the productivity of the public sector and can lead to GDP growth as shown in the economic model of e-Government realised by the EU financed study know as eGEP[151];

(2) By way of increased skills, increased health, and increased employability the aggregate level of human capital in society increase and in turns positively impacts GDP growth[152];

(3) By way of increased take of ICT services and of increased ICT expenditure in the public and private sector ICT industry output, whose contribution to GDP growth is by now a consolidated evidence in economic analysis[153]

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151 According to projections elaborated using this model the direct average impact of e-Government programmes on the GDP of EU25 Member States for the period 2005-2010 is estimated at between 1.14% and 1.54%, that is to say between XXX and € 166 billion using as a base EU25 GDP of 2004 (See e-Government Economics Project (eGEP), *Economic Model Final Version*, 31 May 2006 (*http://217.59.60.50/eGEP/Static/Contents/final/D.3.3_Economic_Model_Final_Version.pdf*) , pp. 14-15. The hypothesis and technicalities behind this model and estimation can be found in e-Government Economics Project (eGEP), *Compendium to the Economic Model*, 25 March 2006 (*http://217.59.60.50/eGEP/Static/Contents/final/Economic_Model_Compendium.pdf*).

152 Economic analysis shows that the level of education (see for instance the classic contribution by Robert J. Barro, "Human Capital and Growth", American Economic Review, May 2001, pp. 12-17) and health (see David E. Bloom, David Canning, "The Health and Wealth of Nations", Science, no. 287; David E. Bloom, David Canning, Jaypee Sevilla, "The Effect of Health on Economic Growth: Theory and Evidence", National Bureau of Economic Research Working Paper no. 8587, November 2001, Cambridge, MA) have important impacts on GDP. Moreover, improved health also positively impact the sustainability of pensions and retirement systems, since healthy longevity can increase the productive life of individuals thus delaying the time of retirement (David E. Bloom & David Canning & Michael Moore, 2004. "The Effect of Improvements in Health and Longevity on Optimal Retirement and Saving National Bureau of Economic Research Working Paper no 10919).

153 The OECD 2003 Scoreboard, for instance, has showed that in OECD countries on average the increased output of the ICT industry directly contributes to the GDP formation: investments in ICT accounted for between 0.35 and 0.80 percentage points of growth in GDP over the period 1995-2001 (OECD "Science, Technology and Industry Scoreboard 2003- Towards a knowledge-based economy", 2003 (http://www1.oecd.org/publications/e-book/92-2003-04-1-7294/). For the US economy it has been estimated that in the period 1995-1999. GDP has registered an average 4.08% growth rate, of which 1.18% was due to the contribution of ICT industries output (Dale W. Jorgenson, "Information Technology and the U.S. Economy", Presidential address delivered at the one-hundred thirteenth meeting of the American Economic Association, January 6, 2001, New Orleans, LA, published in American Economic Review, March 2001, pp. 1-32; McKinsey & Co., "US Economic Growth: 1995-2000", 2001.)

Table 11: e-Inclusion Positive Impacts Framework

Newly digitally included citizens (autonomously or through intermediaries support) who:	*ate micro impacts for citizens*	*diate micro impacts for ations/institutions (public and/ sector) or groups*	*Intermediate meso impact for public sector/ private sector/society*	*Macro Systemic end impact*
Use general public administration online public services (taxes, permits, declarations)	▪ Easier to comply ▪ Save time	▪ transaction costs savings: high	▪ Increased PS productivity ▪ Increased satisfaction with govt	▪ GDP Growth (eGEP model) ▪ Increased trust in govt
Use benefits providing public e-services	▪ Easier to receive benefits ▪ Save time	▪ transaction costs savings: medium	▪ Increased PS productivity ▪ Increased satisfaction with govt	▪ GDP Growth (eGEP model) ▪ Increased trust in govt
Take advantage of: ▪ accessible services ▪ Inclusive e-Government services ▪ ICT for the elderly measures ▪ Digital literacy and employability measures ▪ Cultural diversity and integration initiatives ▪ ICT for marginal youth ▪ ICT for social capital initiatives	▪ distance bridging and new opportunities for the disabled; ▪ Save time; ▪ More access to job opportunities; ▪ More access to learning ▪ More health awareness, monitoring and remote assistance; ▪ Better networked within community and more endowed with instrumental networks (micro dimension of Social Capital)	▪ Increased autonomy for the disabled; ▪ Increased employability for the disabled ▪ transaction costs savings; ▪ More informed effective policies; ▪ Cost reduction for healthcare and long term care ▪ Improved and lower cost delivery of social services ▪ Lower cost for security and integration; ▪ More efficient public employment services	▪ Less time needed to assist the disabled ▪ More Human Capital ▪ Improved Health ▪ Better Employability in general and for the disabled ▪ Better integration ▪ Increased satisfaction with govt and health care system	▪ GDP Growth (Human Capital and employability); ▪ Less cost for assisting the disabled ▪ Less cost for social exclusion ▪ Less cost for health care ▪ More Social Cohesion ▪ Increased trust in govt ▪ Increased Social Capital and Participation
Become better empowered consumers and Internet users	▪ Better compare and access affordable services/products (boost to e-commerce)	▪ Increased turn over (firms) ▪ Transaction cost savings (firms)	▪ Increased PrS Productivity ▪ Increased PrS jobs	▪ GDP Growth (classic ICT effect)
	▪ Access to information and culture ▪ Access to social ties (peer-to-peer, networking, personal encounters; Web 2.0)		▪ New well informed citizens ▪ New socially engaged citizens	▪ Increase Social Capital and participation ▪ Increased Social Cohesion
Additional Reinforcing and Recursive Effects				
Increased use of online public services	▪ More public ICT expenditure	▪ Increased output of ICT industry		▪ GDP Growth (classic ICT effect)

Increased use of online private	▪ More private ICT expenditure		

Acronyms:

PS= Public Sector; PrS= Private Sector

HC= Human Capital; H= Health;

These are the more macro and tangible impacts affecting directly GDP, but other important impact worth mentioning are , for instance, the reduction of the costs of dealing with the problems caused by extreme social exclusion, the reduction of health care costs, and also the possible reduction of the costs of assisting the disabled people in as much as accessible ICT increase their autonomy. Less directly tangible impact include increase in trust in government, in participation , in social cohesion and in the micro[154] and macro dimension of social capital.

10.3. Illustrative quantitative evidence of potential impacts

In this paragraph building on the analysis of potential risks and opportunities presented earlier, a few and selective quantification of potential impacts are provided. So no application of major economic models and tools has been made in the specific field of e-Inclusion. At this stage, thus, only preliminary estimates can be presented.[155].

10.3.1. Potential for reducing the cost of social exclusion

Let us provide a few exemplifications of the potential for reducing the cost of social exclusion using data from the UK context.

In the UK, according to ONS statistics, the number of adults who do not access the internet is 11.3 million, with an estimated 6 – 7 million being of these socially excluded and 4 million older people. The very people who are the most digitally excluded are also those who have greatest reason to interact with government, but they are unable to do so leveraging the potentiality of ICT. These are also the people who are a high cost to the state. According to estimates produced by the UK Social Exclusion Unit a total of £ 57.9 billion (about € 86) billion) is spent every year trying to tackle or prevent problems associated with the social exclusion of about 1.3 million low income Britons who have multiple problems[156]. This means that each individual with multiple social disadvantages costs to society almost € 77,000 per year. Considering that, according to Eurostat date, average annual earning in the UK was € 41,253.4 in 2004, the yearly cost of 1 individual with multiple social problem is 1,74 times the average annual gross earning of a middle class citizen.

According to Eurostat statistics in 2005 for EU25 persons with an equivalised disposable income, before social transfers, below the risk-of-poverty threshold, which is set at 60 % of the national median equivalent disposable income (after social transfers) amount to 26% of

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154 Additionally social network theory study the way individuals mobilise their networks to achieve sought outcomes, especially finding jobs. In a seminal article Mark Granovetter as early as 1973 showed how the more instrumental and 'weak ties' (that is acquaintances rather than relatives and close friends) are the most powerful ways of finding a job (M. Granovetter, The strength of weak ties, American Journal of Sociology 78(May 1973), pp. 1360-1380). Recently U.S. Department of Labour estimated that between 70 and 80% of jobs are found through networking (L. Borghans, B. Weel, and B. Weinberg, B., 'People People: Social Capital and the Labor-Market Outcomes of Underrepresented Groups'. NBER Working Paper No.11985, 2006).

155 In this respect it is worth stressing a gap existing in our understanding of e-Inclusion. While considerable and consolidated theories and empirical estimation are available on topics such as Human Capital and Social Capital in general, no specific applications of them exist on e-Inclusion. Applying the method of calibrations and frontiers of production calculation, would enable to estimate how much extra X% Human Capital derive from increase in the numbers of the digitally included, which could then be used to easily estimate the X% GDP growth potentially deriving from it. This is one of the area to take up for the future research agenda in e-Inclusion.

156 Unpublished data obtained by the author of this IA.

people aged 15-74, that is a total of almost 98 million Europeans, which is the upper bounds as not all this individuals are in the condition of multiple disadvantages. The lower bound can be the 10.9 million Europeans representing the working poor[157], whom with their family member can reach up at least 22 million. This latter figure is equal to an estimation that could be produce assuming a an average figure of individuals with multiple problems in EU27 at 800,000 (about 35% less than the UK one). So 22 millions for EU27 can be taken as a conservative estimate. If the average yearly gross earning for EU27 is considered as estimated by Eurostat at about € 20,000 and multiplied by the 1,74 ratio found for the UK the costs per individual with multiple problems would stand at € 35,000, yielding an aggregate yearly cost of social exclusion for EU27 of about **€ 764 billion**. To be conservative a lower ratio (1 instead of 1,74) can be used and a total figure of **€440 billion** would result.

Under Option C the problems of the severely socially excluded can be tackled in multiple combined ways: a) by ad hoc digital competence programs raising skills and helping them getting better paid jobs; combining this with b) inclusive e-Government initially supported by intermediaries to help them get the welfare benefits to which they are entitled but often fail to receive due to the maze of bureaucracy characterising welfare systems; and further supporting it with c) affordability and subsidised access that may result from the announced common reference framework for a barriers free information society; and finally d) with intermediaries supported use of e-Health services for tackling the health problems. If all these measure combined would contribute to reduce the cost of social inclusion even only by 1% this would be worth between **€ 7,6 billion** and **€ 4,4 billion**.

Another example coming from the UK concerns the cost of youth social exclusion and related costs.

Based on the estimated cost of youth disadvantage in the UK[158], the potential monetary benefits of greater inclusion, achieved also through increased digital inclusion, can be seen to be large. The employment of a marginalised young person would save to the state 67 Euro per week, corresponding to the Job Seeker Allowance paid to 18-t-o-24-years-olds, and would generate an additional weekly income of 357 Euro (average earning in the 20-24 age range in the UK). This amounts to about 22,000 Euro per year. Further savings should also stem from a lesser impact on crime, which has been found to be correlated with both poor educational achievement and lack of work. The estimated total cost of youth crime for Great Britain was in excess of GBP 1 billion in 2004 (1.47 billion Euro).Increasing ICT skills and usage among marginalised young people could contribute to such results by improving their employability. ICT skills are an increasingly important qualification and a prerequisite to finding a job: 40% of employers interviewed in a recent study[159] said that a person without basic ICT skills would likely not be considered for a job, regardless of country, type of industry or function in the organisation.

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157 See European Foundation for the Improvement of Living and Working Conditions Working Poor in the European Union: Seminar Report, 2004 (http://www.eurofound.europa.eu/pubdocs/2004/127/en/1/ef04127en.pdf).

158 The Prince's Trust, 'The Cost of Exclusion. Counting the cost of youth disadvantage in the UK', April 2007

159 Kolding, M. and Kroa, V. 'e-Skills. The Key to Employment and Inclusion in Europe', IDC White Paper, January 2007

The first assumption is that a better use of ICT, including social computing applications and gaming, might improve the motivations and school performance of difficult learners, thus reducing by 0,5% the share of 17-to-24 years olds with no qualifications (which in the UK was 8.26% in 2005, ranging from 6.8% in Scotland to 13.8% in Northern Ireland). The second assumption is that better qualifications among the non-qualified, along with greater ICT skills and more effective job searches (thanks to the internet) might also reduce by 0,5% the share of unemployed 18-to-24 years olds, which in the UK was 8.52% in 2005.This later result would be equivalent to finding a job for about 27,000 people out of 444,000 unemployed ones (in the total age cohort of about 5.2 million). This would entail cutting the amount paid out in Job Seeker's Allowance alone by about 1.2 million pounds per week (over 50 million per year). Besides, approximately 6.5 million pounds per week (over 330 million per year) of additional income would be produced, assuming the same average earnings for employed people in this age range (242 pounds per week). Reducing by 0,5% the share of 17-to-24 years olds with no qualifications, in turn, would be equivalent to giving a qualification to about 30,000 people out of 500,000 non qualified ones (in the total age cohort of about 6 million). Beyond increased income, this might lead to cutting by 150-300 million pounds per year the social costs of exclusion, due to lesser impact on crime which has been found to be correlated with both poor educational achievement and lack of work. An impact of the entity envisaged above on the educational attainment and employment of disadvantaged young people would therefore save costs and cut foregone earnings, in the UK alone, by about 500-650 million pounds, or € 737-960 million, per year.

Due to lack of data granularity similar estimations for EU27 are difficult, however, the example above is already illustrative of the potentiality of e-Inclusion.

10.3.2. Potential for productivity gains and economic growth

It is evident that being digitally excluded or included is a multi-facet phenomenon not reducible to Internet usage. In the calculation below, however, used data are on those who do not use the Internet as a proxy of the various groups of the digitally excluded. While this is a limitation, Internet usage is the only dimension on which reliable and comparable statistics are available for all EU27. Having clarified this, some key parameters that will be used in the estimation can be set.

- Total EU27 population at the end of 2006 is about 492 million
- In EU27 among the population aged 15-74, 55% did not use the Internet regularly, which amount to 204 million individuals not using the Internet or 41% of the total EU27 population. Of this:
    - About 18 millions are aged 15-24;
    - About 107 million are aged 25-54
    - About 43 million are aged 55-64
    - About 37 million are aged 65-74
- Students who do not use the Internet are about 15 million;

- Employed people who do not use the Internet are about 89.5 million;
- Unemployed who do not use the Internet are about 20 million;
- Individual with no or low level of education who do not use the Internet are about 74 million.

Before proceeding to present the quantitative estimates, however, some observations on limitations.

– The estimates are static, which implies : a) that they do not consider interaction and compounding effects; b) are calculated on aggregate for the next five years (2008-2012) as whole and not broken down in year by year figures. This caveat applies also to the specific use of the eGEP model of the economic impacts of eGovernment[160];

– Lacking the underlying causal logic of a sophisticated and consolidated model, which is usually tested by the statistic elaboration of data over a long enough number of years, the estimates are based on simple linear assumptions that are reasonable and informed by theory and some available case studies but cannot be fully illustrated and demonstrated at this stage;

– Data on Internet usage did not, however, enable more detailed and differentiated set of assumption for data not available on: a) percentages of individuals who have no or low formal education and are unemployed and do not use the Internet. This would allow to make better estimates about likelihood of conversion rates (lower for this group, a bit higher with those with medium and higher education who are unemployed and do not use the Internet, etc); b) Percentage of those who are employed and do not use the Internet by level of education and by age (this also would enable better estimates on conversion rates); c) percentage of older people who do not use Internet by level of education and income;

The following estimates refer to two scenarios:

(4) The "***Riga scenario***" of halving ICT disparities in the next five years in line with the commitments made by governments in the Riga Ministerial Declaration to which the e-Inclusion initiative will contribute by stepping up efforts of all involved players. In this scenario, a good response from employability, efficiency gains and market transmission mechanism is expected and would earn a higher economic output. However, even within this scenario, conservative assumptions are made and described below;

(5) The "***slow adoption scenario***" based on slower structural adaptation and on more conservative estimates on absorption by labour markets of the unemployed receiving ICT training.

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160 See e-Government Economics Project (eGEP), Economic Model Final Version, 31 May 2006 (http://82.187.13.175/eGEP/Static/Contents/final/D.3.3_Economic_Model_Final_Version.pdf). The hypothesis and technicalities behind this model and estimation can be found in e-Government Economics Project (eGEP), Compendium to the Economic Model, 25 March 2006 (http://82.187.13.175/eGEP/Static/Contents/final/Economic_Model_Compendium.pdf).

First, estimates of aggregate increase in productivity can be produced as a result of either increased participation to the labour force or of increased skills of the labour force.

Increased participation to the labour force: unemployed becoming digitally literate.

"*Riga scenario":* Riga targets are met. ICT disparities are halved. The job markets absorb 1 in 10 of current unemployed due to better ICT training

– **Assumption(s)**: If disparities are halved, increased digital skills and new social networks established also through use of ICTs will enable 50% of the unemployed who are currently digitally excluded (10 million) to feel in the condition to actively seek a job. By assuming that 1 in 5 of the trained unemployed find a job as a results of the newly acquired skills and social networks (that is 10% of currently unemployed), this translates into an extra **2 million employed**.

- **Calculation**: average annual earnings in the EU27 for industry and services is estimated by Eurostat at €23,000. By using conservative figures, the IA estimates that newly employed will enter the job market with a EU average annual earning of €15,000 (slightly higher than average social security schemes).

- **Potential impact:** This would bring an extra productivity from increased participation to the labour force worth **€ 30 billion;**

"*Slow adoption scenario":* Riga targets are not fully met. ICT disparities are reduced only by 25.

– **Assumption(s)**: If disparities are not halved but reduced by 25% over 5 years, increased digital skills and new social networks established also through use of ICTs will enable 1 in 4 of the unemployed who are currently digitally excluded (5 million) to feel in the condition to actively seek a job. By assuming that 10% of these find a job as a results of the newly acquired skills and social networks (which results in a very conservative 5 in 100 of currently unemployed), this translates into an extra **500,000 employed**.

- **Calculation**: average annual earnings in the EU27 for industry and services is estimated by Eurostat at €23,000. By using conservative figures, the IA estimates that newly employed will enter the job market with a EU average annual earning of €15,000 (slightly higher than average social security schemes).

- **Potential impact:** This would bring an extra productivity from increased participation to the labour force worth **€ 7,5 billion;**

Increased productivity: employed becoming digitally literate

"*Riga scenario":* Riga targets are met. ICT disparities are halved. Enhanced quality and productivity of jobs affect employed with increased pay.

- **Assumption(s):** If disparities are halved, increased digital skills and new social networks established also through use of ICT will enable the employed who are currently digitally excluded (about 90 million) to improve their performance in their current work or to actively seek a better paid job. We conservatively assume that 1 out of 10 either succeed to get a better paid job or is awarded an increase in earning (about 9 million).

- **Calculation:** this increased productivity, either recognised by the current employer or by the new employer, can be measured conservatively by an assumed increase of annual earnings of € 1,000 per year per employed person.

- **Potential impact:** This would bring an extra productivity gain from improved digital skills of the labour force worth **€9 billion**.

"*Slow adoption scenario":* Riga targets are not fully met. ICT disparities are reduced only by 1/4. Therefore, productivity gains are only transmitted to 1 in 10 of current unemployed are rewarded from them

- **Assumption(s):** If disparities are only reduced by 25%, increased digital skills and new social networks established also through use of ICTs will enable only half of the employed who are currently digitally excluded (about 45 million) to improve their performance in their current work or to actively seek a better paid job. We conservatively assume that a bit less than 1 out of 10 succeed either succeed to get a better paid job or is awarded an increase in earning (about 4,5 million).

- **Calculation:** this increased productivity, either recognised by the current employer or by the new employer, can be measured conservatively by an assumed increase of annual earnings of € 1,000 per year per employed person.

- **Potential impact:** This would bring an extra productivity gain from improved digital skills of the labour force worth **€4,5 billion**.

e-Inclusion spurs classic ICT effect on GDP

- The impact of the number of digitally included can be estimated on the ICT industry and in turn GDP growth. This is the classic ICT effect of the eIPIF illustrated earlier[161].

"*Riga scenario":* Riga targets are met. ICT disparities are halved. This will increase the consumer base for ICT tools and services and the positive impact on demand for ICT will be transmitted to the ICT industry

- **Assumption(s)**: a) current divide is halved in the next 5 years (between 2008 and 2012), this means turning 100 million Europeans currently not using the Internet into digitally included citizens by 2012; b) 60 millions will become digitally engaged but use ICT either at work or in public places and so will not buy ICT products or services[162]. c) the remaining 40 millions will buy a computer and a minimum of needed software and will subscribe for a broadband connection at home.

- **Calculation**: a) very conservatively one can assume that each one will spend in 5 years only a total of € 2.000 for hardware and software and € 1.200 for 5 years of broadband connection at home estimated at € 20 per month (below the current average assuming competition will bring prices down); b) this produce and extra turn over for the broadly defined ICT industry worth € 127 billion that is to say an extra 17% with respect to ICT industry turn over in 2007. By spreading this over a five year period extra growth for the ICT industry is generated by 3.4% per year; c) According to the OECD model cited earlier the output of the ICT industry has been proven to contribute for between 0.35% and 0.8% to GDP growth, so if the average of these two values is used, that would be about 0.5%. At the current EU27 GDP average growth rate, this means that ICT industry output contributes to one quarter of GDP growth (0,25). So the extra 3.4% growth of the ICT industry due to e-Inclusion can be estimated to bring an extra contribution to GDP growth of 0,02%; d) If GDP between 2008 and 2012 grows at the current 2% growth, the extra value at market prices would be about € 972 billion. By assuming that instead this value grows by 2,02% as a result of the e-Inclusion effect, the extra value at market prices would be about €982 billion

[161] Naturally these are rudimentary and static calculations not considering interaction effects and possible multipliers or bottlenecks. Yet the figure provide an interesting illustration and is based on conservative assumptions. It cannot be ruled out that using a full econometric model the final result might be higher due to multiplication effects

[162] These 60 millions Europeans will contribute to increased eCommerce turn over and contribute to growth but this effect would require too many assumption to be estimated and it is, thus, not included here.

- **Potential impact**: The e-Inclusion effect on ICT industry, under the assumptions above, would produce an extra GDP growth valuable at **€ 10 billion**;

"*Slow adoption scenario":* The Riga targets will not be fully met. Hence, the consumer base for ICT tools and services will not increase proportionally and the positive impact on demand for ICT will not be entirely transferred upon the ICT industry

- **Assumption(s)**: a) current divide is not halved in the next 5 years (between 2008 and 2012). Assumption is that only 25% of the currently excluded will engage in the information society. Using the above data, this means turning 50 million Europeans currently not using the Internet into digitally included citizens by 2012; b) 30 millions will become digitally engaged but use ICT either at work or in public places and so will not buy ICT products or services[163]. c) the remaining 20 millions will buy a computer and a minimum of needed software and will subscribe for a broadband connection at home.

- **Potential impact**: The e-Inclusion effect on ICT industry, under the assumptions above, would produce an extra GDP growth valuable at **€5 billion**;

Potential efficiency savings for public administrations

These consist of the economic effects linked to the functioning of public administration and to efficiency savings from reduced transaction costs and GDP growth that can be estimated via the eGEP economic model.

In 2006 the percentage of individuals using Internet for sending file forms to government in EU27 was 8.8%, which means in terms of the Europeans who use internet regularly about 13 millions individual. Let us assume that each one of them conclude 2 transaction a year (i.e. tax declaration and a certificate).

The table below provide benchmark on the transaction costs saving moving from face-to-face (or paper base) to online transaction.

Table 12: Benchmark on channel shift transaction cost savings

Channel shift cost savings	Cost saving	Channel comparison
Canadian Government data	€ 28,6	Face-to-face to web
Tameside MBC (2004/05)	€ 20,9	Face-to-face to web
Average channel shift cost savings	€ 24,8	Face-to-face to web

Source: Publicly available evidence (web search)

Using this benchmark an estimation can be made that at current take up of transactional e-Government services in EU27 on average yearly efficiency saving from reduction of

[163] These 60 millions Europeans will contribute to increased eCommerce turn over and contribute to growth but this effect would require too many assumption to be estimated and it is, thus, not included here.

transaction costs are about **€ 645 million**. In a static perspective this would mean a total of about **€ 3.2 billion** from 2008 until 2012 (5 years period).

"*Riga scenario":* take up of transactional e-Government services would double by 2012

- Under the above assumption of halving the use divide by 2012, one can conservatively assumes that, also as a result of better inclusive e-Government policies (better design and targeting, intermediation, etc) by 2012 take up of transactional e-Government services would double and that each individual would make at least 3 transaction a year. Under these assumptions on average yearly efficiency saving from reduction of transaction costs in 2012 would be about **€ 2 billion**. Assuming a gradual path from 2008 till 2012, the efficiency saving will grow as in the table below:

Table 13: Efficiency savings from e-Government take up: 2008-2012

2008	2009	2010	2011	2012	total 2008-2012
€ 773.760.000,00	€ 902.720.000,00	€ 1.547.520.000,00	€ 1.740.960.000,00	€ 1.934.400.000,00	€ 6.899.360.000,00

Over a five year period a total efficiency savings of about **€ 6,9 billion.**

" *Slow adoption scenario":* take up of transactional e-Government services would only increase by 25% by 2012

- Under a more static scenario, and using the same calculations, savings will have to be brought down to about **€3,7 billion** over 5 years.

GDP growth from increased public sector productivity: eGEP model effect

Efficiency gains from transaction cost savings are, however, only a small part of the efficiency and productivity gains that governments can derive from e-Government. The EU financed study eGEP has produced an economic model of the potential e-Government impact on GDP that has been approved by the EU Commission. eGEP Economic Model estimates that the impact of e-Government on the GDP of EU Member States for the period 2005-2010 would be that of producing an extra growth estimated at up 1,54%. Starting from EU27 GDP at market prices in 2006 (**€ 11,562.4 billion**) this amounts to an extra growth worth **€ 178 billion**[164]**.**

Exhibit below provides a very simplified snapshot the logic behind eGEP Economic Model, which is actually a fully fledged model consisting of a very sophisticate and complex equations.

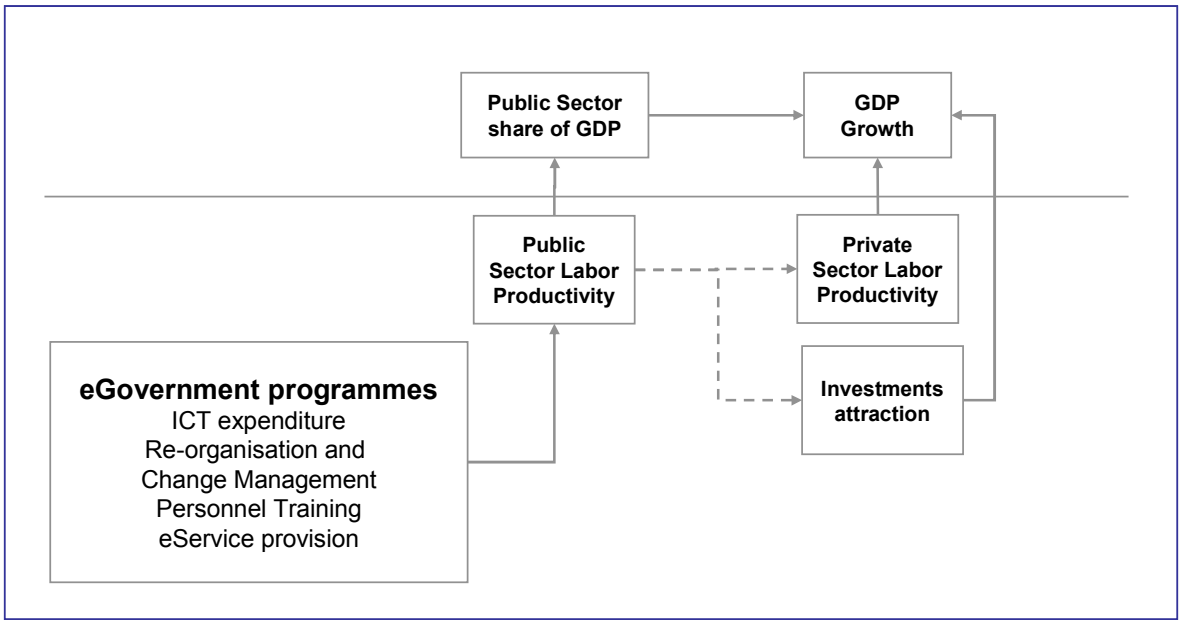
In a very simple manner the model can be summarised as follows: e-Government Programmes (ICT expenditure plus provisions of e-services) increase public sector labour productivity, which in turn reverberates directly on GDP as a result of the effectiveness-efficiency impact and indirectly by also impacting on the productivity of the private sector and by contributing to Foreign Direct Investments, both of which further feed into GDP growth. Naturally the model also foresee the impact that take up of e-Government services has on producing the final result. The more e-Government services are used the more the productivity of the public

164 See e-Government Economics Project (eGEP), Economic Model Final Version, 31 May 2006 (http://217.59.60.50/eGEP/Static/Contents/final/D.3.3_Economic_Model_Final_Version.pdf), pp. 14-15. The hypothesis and technicalities behind this model and estimation can be found in e-Government Economics Project (eGEP), Compendium to the Economic Model, 25 March 2006 (http://217.59.60.50/eGEP/Static/Contents/final/Economic_Model_Compendium.pdf).

sector increase, and so does its impact in GDP growth. The estimate above was produced using the level of e-Government services take up in 2005.

The eGEP economic model in its entirety, however, assumes Internet take up enter the equation interacting with most of the independent variables included in the model. To do a thorough and precise estimation a new econometric design for inputting new updated data on all the variable of the model would be needed also including a new full set of data for the two new countries (Bulgaria and Romania). The model cannot work with EU27 data but needs countries data. So this operation was clearly beyond the time and scope of the current IA.

Exhibit 24: eGEP economic model logic



"*Riga scenario":* Efficiency gains in public administrations are passed through down to a larger base of digitally included individuals (halving digital disparities)

- Under this scenario, the extra growth that increased take up of e-Government services produces is estimated using the eGEP model in a static way. This is probably not a perfect choice methodologically, but by doing this, a conservative figure can be produced that actually underestimate the take up impact on GDP, for it dose not consider the multiplying and compound effects.

- This same procedure of using eGEP to estimate the extra GDP growth as a result of increased take up has been used recently in the UK to estimate the extra contribution that would derive to GDP by including 4.8 millions out of the about 12 millions digitally excluded: the estimate shows that each newly digital included citizen produce an extra £ 200 (€ 297) of GDP growth[165].

- Therefore, assuming of halving the use divide and turn into digitally included citizens 100 million European would produce and extra GDP growth through the effect of increased public sector productivity worth **€ 30 billion** over the next five years, on top of the of the **€178 billion** estimated by the eGEP model at current level of take up.

"*Slow adoption scenario":* Efficiency gains in public administrations are passed through down to a smaller

[165] UK Online Centres, Digital Inclusion A discussion of the Evidence Base, July 2007, p. 42 (http://www.ukonlinecentres.co.uk/downloads/DigitalInclusion_A_discussion_of_the_evidence_base.pdf) . As referenced in this study, this calculation was produced by the UK company Gov3. Note that a co-author of this IA Cristiano Codagnone worked for Gov3 in producing such estimate.

newly included portion of individuals (only a 25% increase in uptake) Under this scenario, assuming that only 25% of the currently excluded will take up services (50 million Europeans) would produce and extra GDP growth through the effect of increased public sector productivity worth **€15 billion** over the next five years, on top of the of the €178 billion estimated by the eGEP model at current level of take up.

Table 14: Summary of economic impacts

Riga scenario	*Slow adoption Scenario*
(I) Becoming digitally included increases **Human Capital**[166] and **Social Capital**[167], which: a) enables some of the digitally excluded who are unemployed to find a job (new skills and new networks)[168]; b) enables some of the digitally excluded who are employed to improve their productivity which is reflected by increased earnings with the same employer or by getting a new better paid job[169]:	
• **€30 billion** from increased participation to the labour force of the currently unemployed who are digitally excluded (5 million get a job at an average income of € 11,000 per year); • **€9 billion** from increased productivity as a result of new digital skills acquired by those in employment (28 million increase their annual earnings by € 1,000)	• **€7,5 billion** from increased participation to the labour force of the currently unemployed who are digitally excluded (5 million get a job at an average income of € 11,000 per year); • **€4,5 billion** from increased productivity as a result of new digital skills acquired by those in employment (8,4 million increase their annual earnings by € 1,000)
(II) The increased number of digitally included citizens buying ICTs products and services boosts the ICT industry output, which has proven impact on GDP growth[170];	

166 The economic impact of Human Capital (by way of increasing employability and productivity) is widely demonstrated in the economic literature (see for instance the classic contribution by Robert J. Barro, "Human Capital and Growth", American Economic Review, May 2001, pp. 12-17). What is lacking from the perspective of e-Inclusion, a gap to be filled by future EU sponsored research and studies, is the integration of digital skills into Human Capital indexes.

167 Social network theory has shown that individuals mobilise their networks to achieve sought outcomes, especially finding jobs. In a seminal article Mark Granovetter as early as 1973 showed how the more instrumental and 'weak ties' (that is acquaintances rather than relatives and close friends) are the most powerful ways of finding a job (M. Granovetter, The strength of weak ties, American Journal of Sociology 78(May 1973), pp. 1360-1380). Recently U.S. Department of Labour estimated that between 70 and 80% of jobs are found through networking (L. Borghans, B. Weel, and B. Weinberg, B., 'People People: Social Capital and the Labor-Market Outcomes of Underrepresented Groups'. NBER Working Paper No.11985, 2006). The way ICT contribute to boost such network is analysed, for instance, in D. Zinnbauer, *What can Social Capital and ICT do for Inclusion?*, Sevilla, European Commission, Directorate-General Joint Research Centre, Institute for Prospective Technological Studies, 2007.

168 A UK case study on the experience of the UK Online Centres, a public point for access and digital literacy programmes and support, has shown that a considerable numbers of the unemployed who used the centres and attended the courses eventually was able to get a job: Goodison T. et al, *ICT and Employability: A Case Study of Clients using UK online centres*, UK Department for Education and Skills, Research Report RR534, London, 2004.

169 This approach assuming that increased ICT skills, as for other type of market relevant skills, improve the productivity and earnings of the already employed is used in some case studies analysed in Annex 4 and in Annex 5.

170 The OECD 2003 Scoreboard, for instance, has showed that in OECD countries on average the increased output of the ICT industry directly contributes to the GDP formation: investments in ICT accounted for between 0.35 and 0.80 percentage points of growth in GDP over the period 1995-2001 (OECD

• **€10 billion** of extra GDP growth resulting from the increase in the output of the ICT industry produced by 40 millions individual buying hardware/software and paying a broadband connection	• **€5 billion** of extra GDP growth resulting from the increase in the output of the ICT industry produced by 20 million individual buying hardware/software and paying a broadband connection
(III) More citizens that are digitally included translate in to increased take of eGovernment services resulting in efficiency and productivity gains[171]:	
• **€6,9 billion** of extra efficiency gains from transaction costs savings for public administrations as a results of increased take up of e-Government services • **€30 billion** of extra GDP growth additional to the €178 billions already estimated by the eGEP economic model as the impact of e-Government on economic growth	• **€3,7 billion** of extra efficiency gains from transaction costs savings for public administrations as a results of increased take up of e-Government services • **€15 billion** of extra GDP growth additional to the €178 billions already estimated by the eGEP economic model as the impact of e-Government on economic growth.

10.4. e-Accessibility impacts

In producing the following very preliminary and only illustrative quantitative estimates of the ***potential costs and benefits of e-Accessibility*** legislative measures the IA has broadly followed the approach and methodology applied by the U.S. Access Board for the *ex ante* assessment of e-Accessibility standards for public procurement introduced by the act known as "Section 508" [172]

In the approached used by the US Access Board the costs of complying with e-Accessibility standards that can be used in public procurement have been identified as follows:

- Costs of modifying ICT product and services to meet the standards for broadly defined ICT industry (which can become costs for economy and society in as much the industry transfer such costs onto consumers);
- Cost of training staff, both for the government and for ICT industry, to market, support, and use accessible products;
- Translation of documentation and instructions into alternative formats;

Using as a baseline the quantification performed in the regulatory assessment of US Section 508 total amount of federal expenditure for ICT and making parametric estimates on the three sources of costs above the *ex-ante* assessment of Section 508 calculated lower and upper bounds of the cost of complying. The lower bound assumes that standards are applied only to strictly defined hardware and software, whereas the upper bound assumes standards are

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"Science, Technology and Industry Scoreboard 2003- Towards a knowledge-based economy", 2003 (http://www1.oecd.org/publications/e-book/92-2003-04-1-7294/). See more references in Annex 4.

171 Backed by the analysis of the EU financed eGEP model referenced earlier and further analysed in Annex 4.

172 US Access Board, *Electronic And Information Technology Accessibility Standards, Economic Assessment*, (http://www.access-board.gov/sec508/assessment.htm#CHAPTER%201).

applied also to services and support services (so using as a base line the entire ICT expenditure figure). The costs thus calculated are a general measure and do not necessarily imply that they are entirely absorbed by the ICT industry. These costs can be spread across the economy by transferring them onto final consumers including government.

The potential benefits of e-Accessibility listed in the ex ante assessment of Section 508 are many[173], however those strictly quantifiable refer to productivity increase for federal employees with disabilities. These are calculated as the value of the differential gap existing between the average yearly income of federal employees with disabilities and the average yearly income of federal employees without disabilities (in the USA the latter earned on average 10% more than employees with disabilities; note that a similar gap has been found in 2005 in the UK in the course of a 2005 Labour Force Survey of the UK's Office for National Statistics, for the economy as a whole[174]).

Applying the same methodology and using the relevant data for the EU27 preliminary estimates can be produced for reinforced e-Accessibility requirements and standards that can be used in public procurement. As regards horizontal approaches to e-Accessibility some clarifications are to be provided in order to understand the nature of costs of complying with the regulation:

- First, these are not costs for the ICT industry alone but rather for all the involved players. In the case of the public procurement measures the involved players are both ICT industry and the public sector. In the case of horizontal measures the involved players include the whole economy and society;

- Second, even the share of costs falling specifically onto the ICT industry might actually be spread on economy and society by way of increasing prices of final product;

- Third, the compliance with eventual measures will be applied gradually. So costs of complying are not immediate, but will be gradually absorbed in the course of several years.

Cost/benefits of e-Accessibility standards and technical requirements that can be used also in public procurement. Starting from the baseline of total ICT expenditure by the public sector of EU27 estimated for 2007 equal to €75 billion and shared between 48.5% for hardware and software and 51.5% for services[175], the lower and upper bounds of the cost of complying and of the potential benefits are as follows:

Table 15: Costs of complying with e-Accessibility standards and requirements that can be used in public procurement

Economic Costs	Economic Benefits

[173] These are: a) increased public accessibility; b) lowering baseline cost of accommodation for disabled employees; c) reduction of entry barriers for employment in federal government by disabled people; d) improved productivity for employees who are not disabled but who benefit but the increased general usability entailed by accessible ICT products and services; e) "Spill-Over" effects from Transfer of Accessibility Improvements from the Federal Government to the Private Sector thus improving access to employment and improved productivity for disable people in the economy as a whole.

[174] Reported in www.shaw-trust.org.uk/page/6/89/

[175] Estimates extrapolated from the study of ICT and eGovernment expenditure presented in the EU financed eGEP study.

		(in terms of increased productivity of public sector employees with disabilities)	
Lower bound	**Upper bound**	**Lower bound**	**Upper bound**
€ 1 billion	€ 2.1 billion	Zero, eAccessibility regulation has no impact on disabled government employees	€ 7.8 billion

11. ANNEX 5: STATE OF PLAY IN E-ACCESSIBILITY

11.1. What is e-Accessibility and which problems can it solve?

The need for a revision of the e-Accessibility situation was foreseen in the 2005 e-Accessibility Communication[176]. e-Accessibility concerns arise when the content, functions or other features of ICT products and services pose problems of access and usage for some persons, e.g. people with disabilities or older people. It has relevance in many technology domains and affects a wide range of slight or severe impairments[177].

E-Accessibility solutions can be divided into:

- 'mainstream' solutions implementing accessibility features from the start in the design of everyday ICT products and services of the Information Society
- 'assistive' solutions whereby accessibility features 'add-ons' to the mainstream products and services used by everyone else.

For reasons of economic efficiency and non-discriminatory treatment, the priority must be to ensure that mainstreaming of e-Accessibility is achieved wherever possible.

e-Accessibility is aimed at solving a number of disability challenges among which the following ones are main examples:

- Visual impairments: People with visual impairments may experience barriers to using visual services, content and features. For example: web sites; visual displays and visual status indicators on computers, mobile phones, bank machines and other devices; paper telephone directories; the video content of TV broadcasts / videocassettes / DVDs; teletext and subtitles on TV. e-Accessibility solutions include designing ICT products and services so that the visual presentation can be adjusted by the users to meet their needs: font type and size, contrast, use of colours; provision of speech, audio or other output modes as alternatives to visual displays and to visual status indicators on ICT products; provision of an additional audio channel / track to narrate the visual content in TV broadcasts / videocassettes / DVDs; ensuring that ICT products and services are designed so that they are compatible with the assistive technologies that many people with visual impairments use such as text-to-speech software and related products.

- Hearing impairments: People with hearing impairments may experience barriers to using voice-based and other audio-based services, content and features. For example: voice telephony; the sound content in TV broadcasts / videocassettes / DVDs; audio signals that indicate system status; interference on hearing aids caused by mobile phones. e-Accessibility solutions include ensuring that audio outputs are adjustable in volume and quality; provision of visual or other output modes, such as vibrating, as alternatives to audio signals; tele-Communications services that enable real-time communication in

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176 *A follow-up that focuses on the e-Accessibility situation will be made two years after the publication of this Communication. …the Commission may consider additional measures, including new legislation if deemed necessary. This e-Accessibility work will in turn contribute to the already announced 2008 European Initiative on e-Inclusion*

177 MeAC study, *op. cit. ongoing*

whatever medium is most suitable for the user (voice, text or video); provision of text telephones to provide an alternative to voice telephony or videophones to enable communication by sign language and text telephone relay services that provide an operator service to enable users of text telephones to communicate with users of ordinary voice telephones; provision of text captions to enable deaf people to follow the audio component of TV / videos / DVDs; design of mobile phones to minimise interference on hearing aids; ensuring that ICT products and services are designed so that they are compatible with the assistive technologies that many people with hearing impairments use.

- Speech impairments: People with speech impairments may experience difficulties in using voice-based services, for example, the voice telephone and interactive voice services. e-Accessibility solutions include provision of text telephone and text telephone relay services, and alternatives to speech input in interactive voice systems.

- Mobility impairments: People with dexterity impairments may experience difficulties with interfaces requiring fine manipulation such as computer mouse, small keyboards or number pads. People who use wheelchairs or who have other forms of mobility impairment may experience difficulties in gaining physical access to relevant services like public telephones, bank machines. e-Accessibility solutions include design of public telephones, bank machines, ticket machines and information kiosks so that they are accessible to wheelchair users; design of keypads, touch screens and other interface devices to cater for people with dexterity problems like larger and better spaced buttons, less sensitive keys; design of ICT products so that they are compatible with the assistive technologies that are commonly used by people with dexterity problems.

- Cognitive impairments or age-related changes in cognition: People with cognitive impairments as well as people with age-related changes in memory, reaction speed or other areas may experience difficulties in understanding and using inappropriately designed or unnecessarily complex online services and ICT-based products and services. e-Accessibility solutions include design of online services and other ICT-based products and services that are understandable and usable by people with cognitive impairments and that accommodate age-related changes in information processing abilities.

- Multiple disabilities: Disabilities often present themselves in combination. This is especially relevant when ageing is considered. This adds up to the challenge of finding technological solutions to cope with the challenges deriving from multiple disabilities.

11.2. Why is public intervention on e-Accessibility needed?

There are e-accessibility solutions on the market (e.g. tactile and audio-interfaces, text magnifiers, etc). Various factors drive the development of these solutions: e.g. business incentives, public financing, legal requirements. Where all these factors are in place, there is a more complete set of e-accessibility solutions better meeting the needs of users concerned. In particular, legal requirements (and supporting standards) address problems of interoperability and market fragmentation. However when legal requirements are diverging across national and sometimes local boundaries, this leads to lower economies of scales and thus higher costs, and turn into access barriers for users.

The 2005 Commission Communication on e-accessibility indicated that within two years the e-accessibility situation in the EU should be reviewed and further measures proposed if

necessary, including legal measures. There are currently other EU measures to promote e-accessibility, notably public financing for research and deployment. These EU measures on e-accessibility, legal and supporting measures, are based by social and economic considerations; namely, the protection of human rights and fight against discrimination; and the cohesion of the internal market

11.3. What is the current legislation on e-Accessibility

At EU level, there are several pieces of EU legislation that affect e-Accessibility., such as:

(1) The Electronic Communications Framework

In 2002 the Commission adopted 5 Directives ("regulatory package") providing a regulatory framework for electronic networks and services, including several provisions on users with disabilities in the Directives on (1) the Framework and (2) Universal services and users rights. These provisions aim at guaranteeing that users with disabilities have access to e-Communications services equivalent to those enjoyed by other end-users. Member States have some degree of flexibility in implementing these EU provisions into national law. Some national measures aim, for instance, at making public pay telephones accessible to the disabled, providing public text telephones for deaf or speech-impaired people, providing directory enquiry services or an equivalent free of charge for blind people, etc.

Box 5: Provisions in the electronic Communications framework on or relevant to users with disabilities

Provisions in the electronic Communications framework most relevant for users with disabilities

The provision of electronic communications networks, electronic communications services and associated facilities and services

Article 8 of the Framework Directive

Article 8(2) – the provision of services to disabled users

Article 8(4) – promotion of the interests of disabled users

Accessibility of public pay telephones

Article 6 of the Universal Service Directive

Special measures for disabled users: publicly available telephone services

Articles 7 and 26 of the Universal Service Directive

Article 7(1): accessibility to and affordability of publicly available telephone services

Article 7(2): choice of undertakings

Article 25(3): directory services and directory enquiry services

Article 26: access to the single European emergency number, 112

Affordability of tariffs

Article 9 of the Universal Service Directive

Article 9(2): possible prevention from using publicly available telephone services because of price

Quality of service of designated undertakings

Article 11 of the Universal Service Directive

'Must carry' obligations

Article 31 of the Universal Service Directive

Consultation with interested parties

Article 33 of the Universal Service Directive

(2) The Electronic terminal equipment Directive

There is a specific provision relating to disabled users in Directive 1999/5 EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity. The Commission has not so far activated this provision.

(3) The Principle of Fundamental rights and equality

Equality and non-discrimination are general fundamental rights introduced in Member States Constitutions, European Treaty (Art. 13), European Charter on human rights, UN Convention on the rights of persons with disabilities.

(4) Other EU legislation directly or potentially relevant to e-Accessibility

- This is the case of various legislative frameworks on information and communications and on social aspects of inclusion. In this regard, a number of provisions for disabled users exist:

  a) the 2004 public procurement directives contain provisions that allow a public procurer to ask for products and services taking into account the specificities of disabled users;

  b) in legislation on employment notably the Directive on equal treatment in work conditions,

  c) in the e-commerce Directive,

  d) in the Directive on copyright in the information society,

  e) in the Directive on audiovisual media services.

11.4. Market barriers for e-Accessibility and digital inequalities

It must be stressed that, following the World Health Organisation International Classification of Functioning, Disability and Health (ICF- May 2001), disability is not entirely an attribute of an individual, but rather a complex social and environmental construct in the sense that societal attitudes and the limitations of the human-made environment exacerbate the problems deriving from disabilities[178]. The way online services are provided and designed is just one example of the many human-made environments shaped by ICT in way that represents barriers for people with disabilities. Persons with disabilities and impairments face specific

[178] "2004 Report COCOM04-08", p. 14.

problems with human/ICT interfaces. First, even where ICT applications and/or ICT based contents and services work effectively, they are frequently inaccessible because of inadequate design. Second, assistive technology which supplements mainstream ICT goods and services to make them accessible is still too often expensive or unavailable. Third, since assistive technology solutions are not embedded into mainstream ICT hardware and software, the required integration work often reduce the reliability of the systems and services and worsen fruition.

The inaccessibility of online services is a special problem that persists, even though global guidelines for basic design have been established by the World Wide Web Consortium for a long time already and despite the legislation and policies already adopted at EU and Member States level

As it has been documented by EU financed studies[179], e-Accessibility is not solely a question of accessible web sites, even if this is one central issue for the policy agenda. In fact, a number of traditionally different sectors are involved, including telecommunications (services and equipment), broadcasting, home electronics, and computing and electronic office equipment (Figure below). Increasingly there is convergence and blurring of the boundaries between these domains. The location of usage is also relevant, including the home, the office and public places.

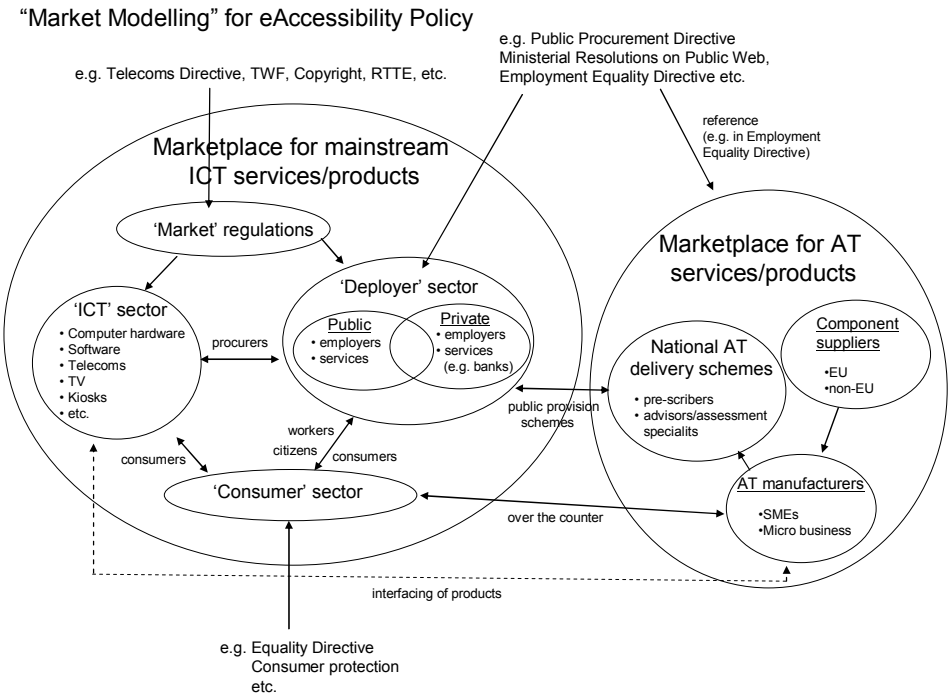
The value chain for e-Accessibility has many facets and various actors define the "market" for e-Accessibility. e-Accessibility refers to three categories of products/services: ICT hardware, software and services provided by the means of ICT (e.g. retail, health and social care, public and other commercial services).

e-Accessibility refers to both general purpose mainstream ICT (e.g. PCs, TVs, telephony etc.) and to specialised assistive ICT designed to interact with mainstream technologies and tailored to special users' needs (e.g. specific disabilities). Many of the assistive technologies are often tailor made. They are not standardised and they do not interoperate easily with mainstream technologies, thus being more expensive for the final users.

e-Accessibility is often affected by different (sometimes diverging) regulatory frameworks based on different principles and mainly applicable at the national level, thus making features for these technologies respond to different conformity criteria or different requirements.

[179] e-Inclusion@EU study (2006)

Exhibit 25: The value chain for e-Accessibility



Therefore, much of the e-Accessibility market is fragmented, with different implementation schemes and different degrees of services provided to users. This situation not only is problematic regarding the principles of internal market for ICT tools and services, but also restricts the movement and access to services for people with disabilities and elderly.

The fragmentation of the European assistive technology market, which is due to the presence of many small national players, insufficient standardisation, and the complexity of national reimbursement schemes, makes the availability of solutions to end users very uneven across the EU. This situation limits the use of assistive technologies, because of weak market transparency and limited affordability in countries with restrictive provision schemes[180].

Furthermore, it is important to recognise that accessibility challenges are not the only inclusion issues that disabled or older people are likely to face. For people with disabilities, for example, income levels tend to be lower than average and unemployment levels higher.[181] Therefore they are likely to share social exclusion difficulties with other disadvantaged groups, compounded by to e-Inclusion and e-Accessibility barriers.

For disabled people there are three broad implications in term of digital inequalities:

(5) ICT access barriers contribute to digital divides. So individuals who are both disabled and disadvantaged with respect to other characteristics (income, education, employment) face double barriers to access ICT;[182]

180 Empirica, WRC, 2007, Measuring e-Accessibility (*ongoing*)

181 e-Inclusion@EU, p. 19

182 For second order digital divides see: www.einclusion-eu.org/ShowCase.asp?CaseTitleID=72&CaseID=144&MenuID=156

(6) For those disabled individuals who, however, do not suffer from other socio-economic disadvantages the inaccessibility to ICT is source of new forms of exclusion;

(7) Inaccessibility of ICT limits ICT potentiality to improve the life of disabled peoples. People with disabilities could potentially benefit in some cases even more than other individuals as ICT can bridging distances and reducing the need to physically move: reduce domestic isolation, generate new training and employment opportunities, increased the choice of entertainment.

This affects a large number of Europeans, considering both severe disabilities (from birth or caused by diseases and/or accidents) and slight/moderate disabilities gradually acquired as a result of the ageing process and progressively worsening.

e-Accessibility and usability are related.. Strictly defined accessibility problems faced by individuals with disabilities have much in common with problems faced by older people with more moderate limitations.

According to data of January 2006, between 10% and 15% of the European population is affected by some form of disability[183], this means between 50 and 73 million people of the EU27 total population.

An alternative and more disaggregated view is that presented in the figure below only for EU25 and with future projections for people aged 50 and over (not including younger disabled individuals).

Exhibit 26: Estimated user demand for accessible ICT products, services and assistive technologies among the EU25 50+ population (in Mio)

Indicator of potential market size		Demand potential in Mio			
Indicator for need	**Degree of impairment**	**2005**	**2010**	**2020**	**2050**
Vision problems	slight/ moderate	43.1	46.3	53.1	59.1
	severe	19.1	20.5	23.5	26.2
Hearing problems	slight/ moderate	41.4	44.4	51.0	56.7
	severe	8.0	8.5	9.8	10.9
Dexterity problems	slight/ moderate	30.2	32.5	37.2	41.4
	severe	15.9	17.1	19.6	21.8
More than one of these	slight/ moderate	68.5	73.5	84.3	93.7
	severe	33.4	35.9	41.2	45.8

Source: Own calculation demographic data available from SENIORWATCH 2002 and demographic projections from Eurostat 2005

From Study "The Demographic Change – Impacts of New Technologies and Information Society" http://ec.europa.eu/employment_social/social_situation/studies_en.htm

183 Estimate presented in Cocom report, p. 14. using Data collected by Eurostat, the Eurobarometer and some Member States.

These two different estimates both show the quantitative relevance of the phenomenon. In sum, the number of Europeans with impairments and functional limitations is significant and expected to increase substantially as the population grows older.

Consequently, given the sheer size of the population affected and the slow progress achieved, we cannot expect segment of the European population to adopt ICT according to an optimistic S-Shaped projection. Reducing disability related inequalities to foster inclusion requires policy and social action, both as a matter of fundamental rights and collective responsibility, and for economic reasons, as illustrated below.

First, all citizens have the right to enjoy the full benefits of new technologies. This includes persons with disabilities. This is covered by Article 13 (on measures against discrimination) of the EU Treaty and provides a strong competence for the EU to act on e-Accessibility on grounds of equality. This requires specific equality measures that address e-Accessibility.

Second, fragmentation of legislation, policies and standards in the areas of e-Accessibility distort the Internal Market as they create uncertainties and national barriers for ICT industry.

Third, inaccessible ICT have an aggregate societal opportunity cost as shown in paragraph 11.4.

The increasing pervasion of ICT tools and services implies that access to and accessibility / usability of the technology are preconditions for using ICT-based services, whether for the end-user who may have restricted competences, or for the professional or service provider. e-Accessibility of mainstream ICT products and services, which can be achieved through *design for all / universal design* and through dedicated assistive technology are therefore key characteristics as well.

11.5. Assessing e-Accessibility: trends and recent developments

This assessment presents preliminary results based of a survey of organisations representing people with disabilities undertaken by the MeAC study conducted for the Commission[184]. The results presented here are expected to change when the full dataset is available.

Results are structured into five sections or domains:

- Telephony
- TV broadcasts
- Computer hard- and software
- Web content and services
- Self-service terminals

[184] Study on Measuring progress of eAccessibility in Europe (MeAC), 2007 (S 21-022483), not yet finalised.

11.5.1. Telephony

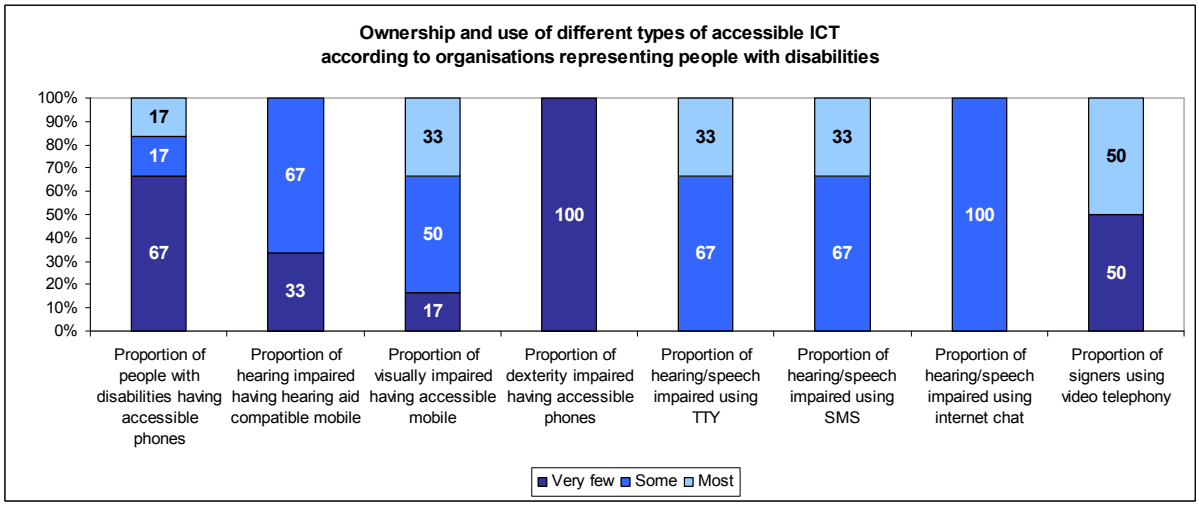
The next 2 charts address a wide range of people with different types of disability, including people with hearing, speech, visual, mobility and dexterity impairments.

Technological issues concerned include hearing-aid compatibility of fixed-line and mobile phones, voice output and display visibility for visually impaired, voice dialling and one-button control for dexterity impaired, text telephony and other modes of text-based communication for hearing and speech impaired, video telephony for sign-language users, and also accessibility of public phone booths for wheelchair users.

11.5.1.1. Availability of accessible technologies

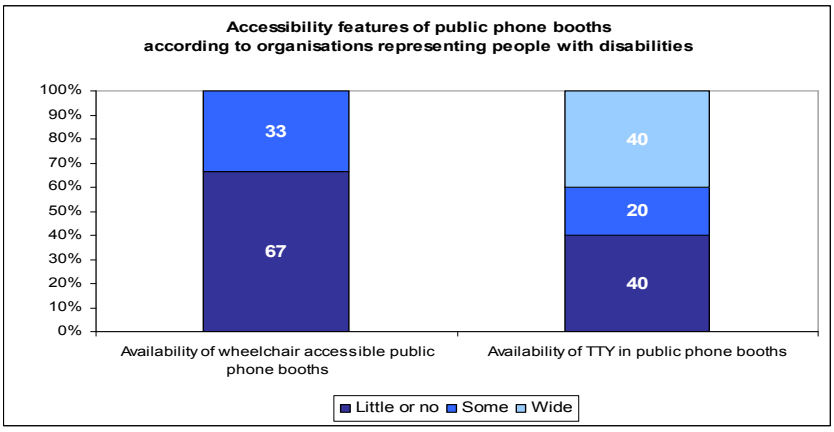
One part of the results will deal with the availability of different accessible technologies in the telephony domain in general and with actual ownership and use of these technologies in particular.

Exhibit 27: Ownership and use of different types of accessible ICT



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007

Exhibit 28: Accessibility features of public phone booths



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007

11.5.2. Progress in eAccessibility

The user organisations were asked to assess in how far there has been any progress in the different areas of telephony accessibility over the last years, stating whether there was considerable, some or no progress or whether the situation actually got worse.

Exhibit 29: Progress in various areas of eAccessibility over the last years

Progress in relation to ...	
Availability of voice output mobile controls	⇗
Accessible mobiles for hearing impaired	⇗
Availability of inductive coupling mobiles	⇗
Availability of adaptable mobile displays	⇗
Availability of accessible phones	⇗
TTY quality of communication	⇗
Availability of text telephones	⇨
Availability of TTY in phone booths	⇨
Availability of wheelchair accessible phone booths	⇨
Availability of mobiles for dexterity impaired	⇨
Availability of video telephony	⇨

Note: ⇧ Considerable progress; ⇗ Some progress; ⇨ No progress; ⇩ Things got worseSource: MeAC, Survey of organisation representing people with disabilities, 2007.

Another set of questions deals with the main factors contributing to the progress indicated before. User organisation are asked whether it is due to

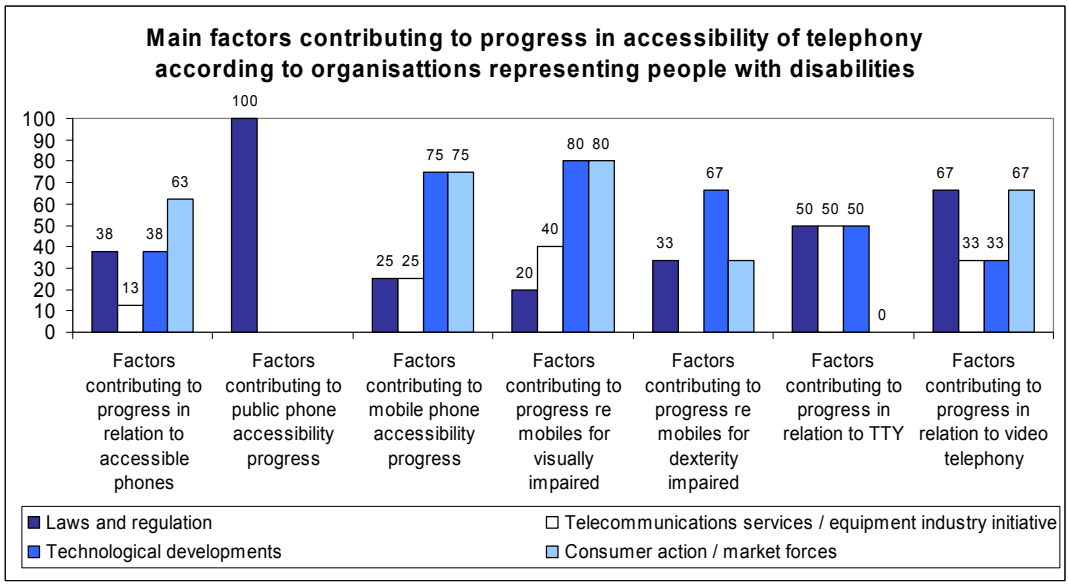
– Laws, regulations or other official polices

– Actions taken on initiative of the telecommunication service providers or the equipment industry

– General technological developments

– Consumer actions or market forces

– **Exhibit 30: Main factors contributing to eAccessibility progress**



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007.

11.5.3. eAccessibility barriers

Finally, user organisations were asked to identify key barriers blocking progress in different areas of telephony accessibility, such as lack of available products / devices, lack of information available on products / devices, and prices too high for the end users.

Exhibit 31: Barriers to ownership of different types of accessible ICT

Barrier to having accessible phone…	
No products available	●
No information on products available	●
Too expensive for end users	●
Barriers to having hearing aid compatible mobile phone	
No products available	●●
No information on products available	●●
Too expensive for end users	●●
Barriers to having a mobile for visually impaired	
No products available	●
No information on products available	●
Too expensive for end users	●●
Barriers to having a mobile phone for dexterity impaired	
No products available	●●
No information on products available	●●
Too expensive for end users	●●

Barriers to having a text telephone	
No products available	○
No information on products available	○
Too expensive for end users	○
Barriers to having a video telephone for signing / lip-reading	
No products available	●
No information on products available	●
Too expensive for end users	●

Legend: ○ No barrier; ● Minor barrier; ●● Major barrier Source: MeAC, Survey of organisation representing people with disabilities, 2007.

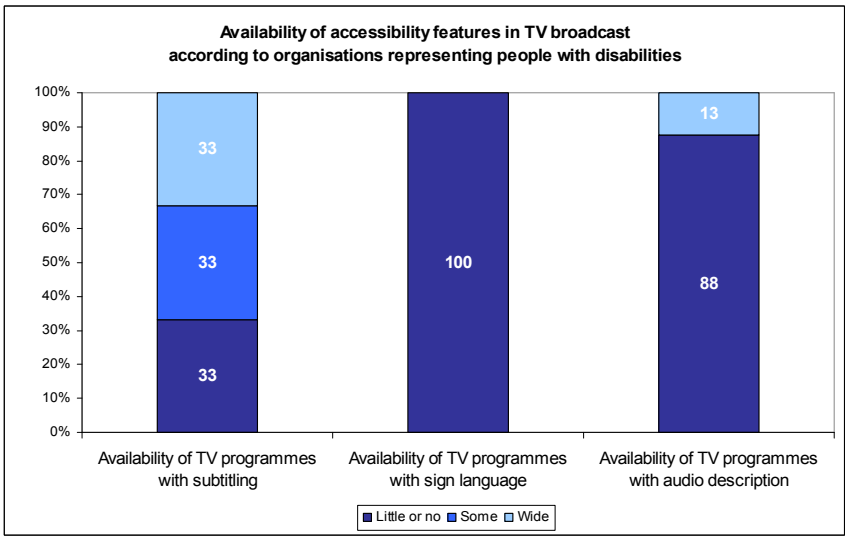
11.6. TV broadcast

eAccessibility issues related to TV broadcast are of primary concern for people with visual and with hearing impairments.

From a technological viewpoint this concerns sub-titling (or captioning) as well as sign language interpretation for people with hearing impairments, and audio description for people with visual impairments.

11.6.1. Availability of accessible technologies

Exhibit 32: Accessibility features in TV broadcast



Note: % of respondents, n=14 Source: MeAC, Survey of organisation representing people with disabilities, 2007.

11.6.2. Progress in eAccessibility

The user organisations were asked to assess how far there has been any progress in the different areas of TV broadcast accessibility over the last years, stating whether there was considerable, some or no progress or whether the situation actually got worse.

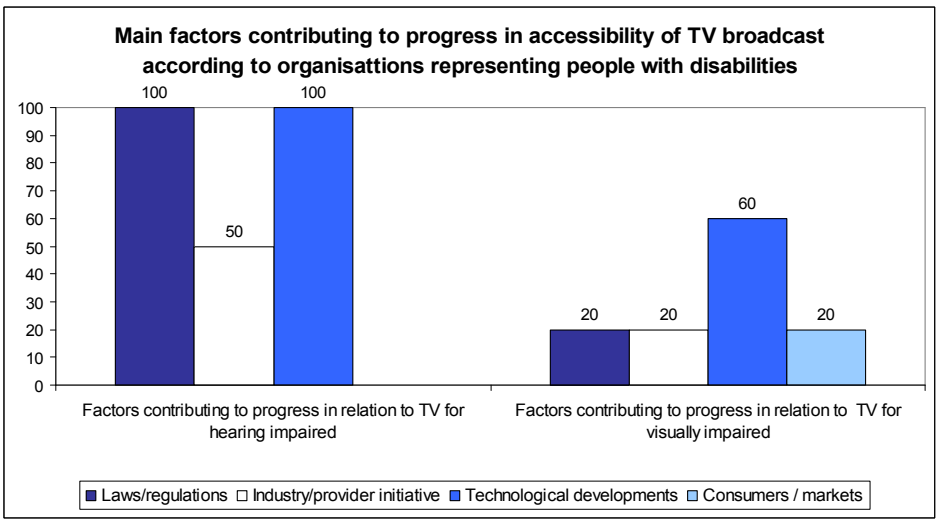
Exhibit 33: Progress in accessibility of TV broadcast over the last years

Progress in relation to ...	
Availability of sub-titling/signing of TV programmes	⇗
Availability of equipment for TV for hearing impaired	⇗
Availability of audio description	⇗
Availability of accessible text/menu-based TV services	⇨
Availability of equipment for TV for visually impaired	⇨

Note: ⇧ Considerable progress; ⇗ Some progress; ⇨ No progress; ⇩ Things got worse Source: MeAC, Survey of organisation representing people with disabilities, 2007.

Another set of questions dealt with the main factors contributing to the progress experienced by the two main groups of disabled concerned.

Exhibit 34: Main factors contributing to accessible TV broadcast progress



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007

11.6.3. eAccessibility barriers

Finally, user organisations were asked to identify key barriers blocking TV accessibility progress for the two disability groups.

Exhibit 35: Barriers to ownership of different types of accessible TV equipment

Barrier to having a TV for hearing impaired…	
No products available	●●
No information on products available	○
Too expensive for end users	○
Barriers to having a TV supporting audio description…	
No products available	●
No information on products available	●
Too expensive for end users	●●

Legend: ○ No barrier; ● Minor barrier; ●● Major barrierSource: MeAC, Survey of organisation representing people with disabilities, 2007.

11.7. Computer hard- and software

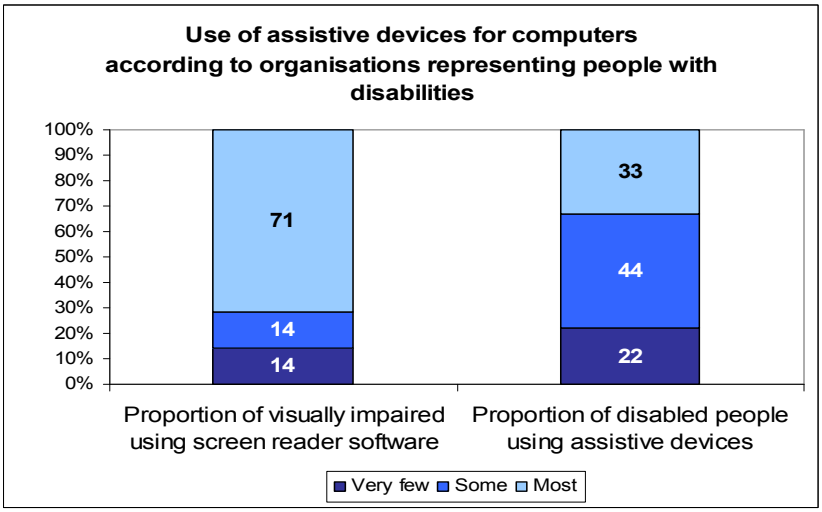
eAccessibility issues related to computer hard- and software again concern a wide range of people with disabilities, including people with visual, hearing and dexterity impairments.

As regards the technological side of computer accessibility, two main areas can be discerned. On the one hand there are accessibility features that are an integral part of a PC (such as screen-magnification software that is part of an operating system like Windows or Mac OS, but also ergonomic keyboards). On the other hand there are assistive devices (hard- and software) that can be added to a computer to make it accessible (these include, for instance, screen reader software used by blind people, input devices like mouth-sticks, voice control software etc.).

11.7.1. Availability of accessible technologies

Part of the results dealt with the availability of screen reader software (as one of the most frequent assistive technologies) in particular and with the use of assistive devices in general.

Exhibit 36: Use of assistive devices for computers



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007

11.7.2. Progress in eAccessibility

The user organisations were asked to assess how far there has been any progress in the accessibility of computers over the last years.

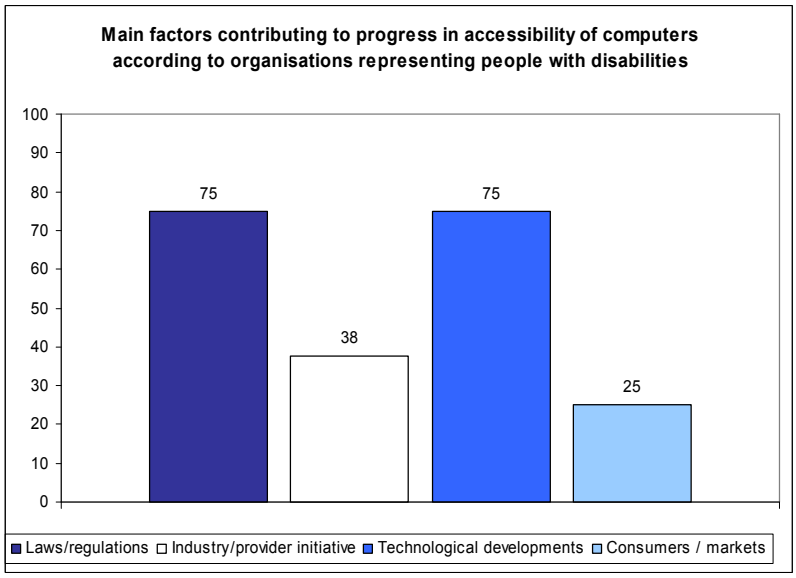
Exhibit 37: Progress in computer accessibility over the last years

Progress in relation to ...	
Availability of PCs with in-built accessibility features	⇗
Availability of software with in-built accessibility feat.	⇗
Availability of assistive devices and software	⇗

Note: ⇧ Considerable progress; ⇗ Some progress; ⇨ No progress; ⇩ Things got worse Source: MeAC, Survey of organisation representing people with disabilities, 2007.

Another question dealt with the main factors contributing to the progress in computer accessibility.

Exhibit 38: Main factors contributing to computer accessibility progress



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007.

11.7.3. e-Accessibility barriers

Finally, user organisations were asked to identify key barriers blocking computer accessibility progress.

Exhibit 39: Barriers to ownership of assistive devices/software

Barrier to having assistive devices/software…

No products available	●
No information on products available	●
Too expensive for end users	●●

Legend: ○ No barrier; ● Minor barrier; ●● Major barrier Source: MeAC, Survey of organisation representing people with disabilities, 2007.

11.8. Web content and services

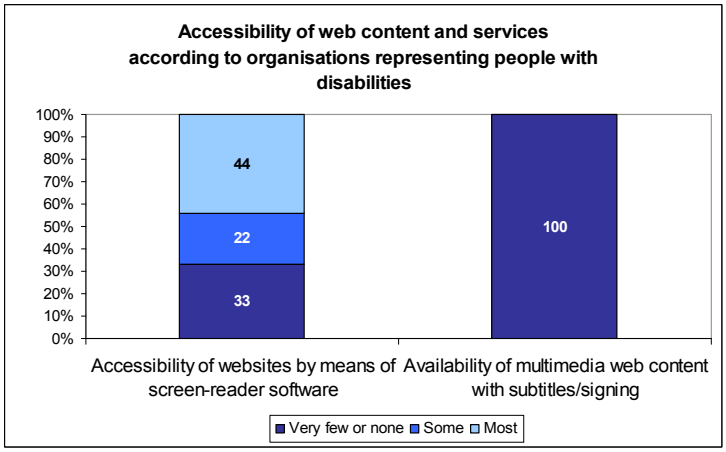
As in the case of computer accessibility, eAccessibility issues related to the internet and web content and services concern a wide range of people with disabilities, including people with visual, hearing and dexterity impairments.

As regards the technological side of web accessibility, two main areas can be discerned. On the one hand, the accessibility of general web content such as text and of dynamic applications used for service provision, concerning primarily people with visual and dexterity impairments, as well as, to a lesser extent, people with hearing impairments. On the other hand accessibility of multimedia content (mainly videos and animations) to people with hearing impairments by means of sub-titling and signing.

11.8.1. Accessibility of web content

Part of the results dealt with the accessibility of websites by means of screen-reader software and of multimedia web content by means of sub-titling/signing.

Exhibit 40: Accessibility of web content and services



Note: % of respondents, n=14. Source: MeAC, Survey of organisation representing people with disabilities, 2007.

11.8.2. Progress in web accessibility

The user organisations were asked to assess how far there has been any progress in the accessibility of public and private websites over the last years.

Exhibit 41: Progress in web accessibility over the last years

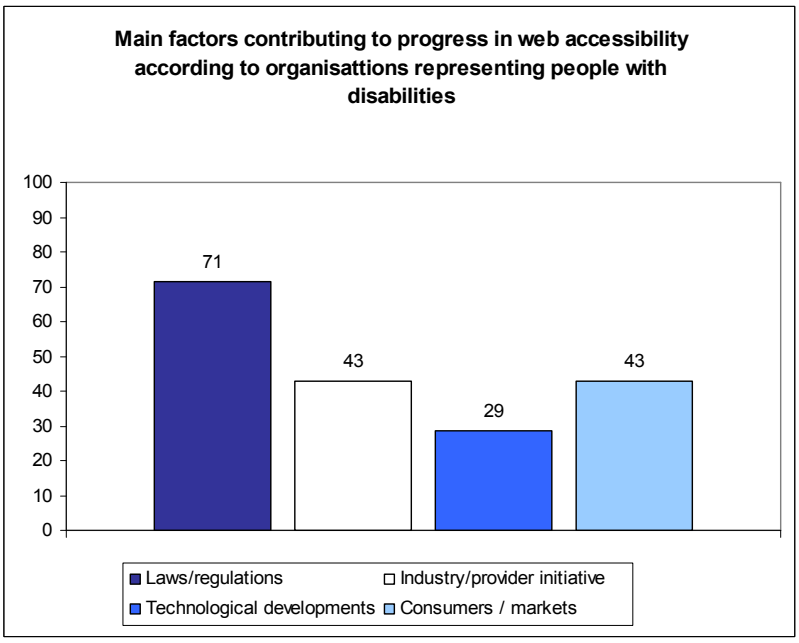
Progress in relation to ...

Accessibility of web content/services: public sites	⇗
Accessibility of web content/services: private sites	⇗
Accessibility of multimedia content: public sites	⇨
Accessibility of web content/services: private sites	⇨

Note: ⇧ Considerable progress; ⇗ Some progress; ⇨ No progress; ⇩ Things got worse Source: MeAC, Survey of organisation representing people with disabilities, 2007.

Another question dealt with the main factors contributing to the progress in web accessibility.

Exhibit 42: Main factors contributing to web accessibility progress



Note: % of respondents, n=14 Source: MeAC, Survey of organisation representing people with disabilities, 2007.

11.9. Self-service terminals

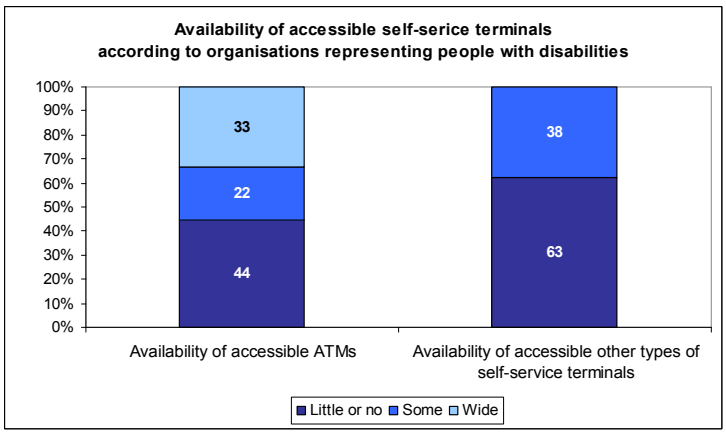
eAccessibility issues related to self-service terminals (such as automated teller machines, ticket machines) are of primary concern for people with visual and mobility impairments.

From a technological viewpoint, this concerns display visibility and speech output for visually impaired and blind people as well as wheelchair accessibility of terminals.

11.9.1. Availability of accessible technologies

Part of the results dealt with the availability of the two main different types of accessible self-service terminals.

Exhibit 43: Availability of accessible self-service terminals



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007

11.9.2. Progress in eAccessibility

The user organisations were asked to assess how far there has been any progress in the accessibility of self-service terminals over the last years.

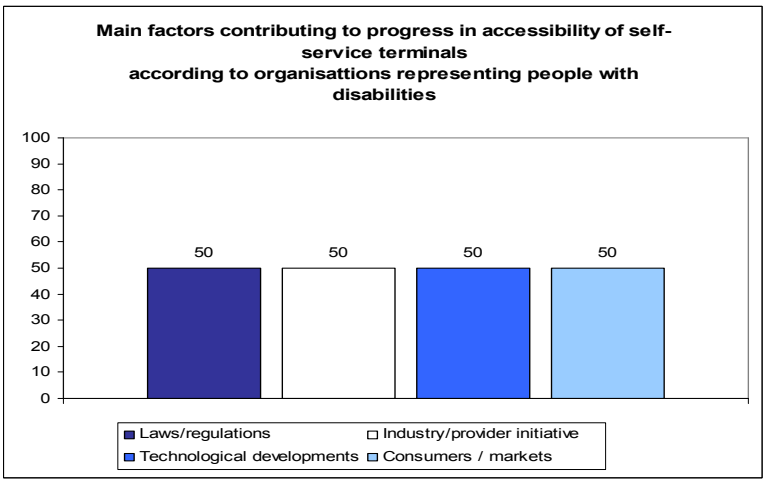
Exhibit 44: Progress in accessibility of self-service terminals over the last years

Progress in relation to ...	
Accessibility of ATMs	⇗
Accessibility of other self-service terminals	⇨

Note: ⇧ Considerable progress; ⇗ Some progress; ⇨ No progress; ⇩ Things got worse Source: MeAC, Survey of organisation representing people with disabilities, 2007.

Another question dealt with the main factors contributing to the progress in self-service/ ATM terminals.

Exhibit 45: Main factors contributing to progress in self-service terminal accessibility



Note: % of respondents, n=14.Source: MeAC, Survey of organisation representing people with disabilities, 2007

11.10. Overview of Member States e-Accessibility legislation and policy

A high degree of differentiation appears in terms of **legal measures and accompanying policies for** e-Accessibility. These measures can be distinguished on whether they tackle specific sectors or technologies (vertical approach) or whether they are of horizontal nature addressing a combination of goals such as employment equality, anti-discrimination in the provision of goods and services, and are not technology-specific.

Vertical approach measures covering a wide range of ICT tools and services, such as:

Table 16: ICT tools and services potentially covered by vertical approaches

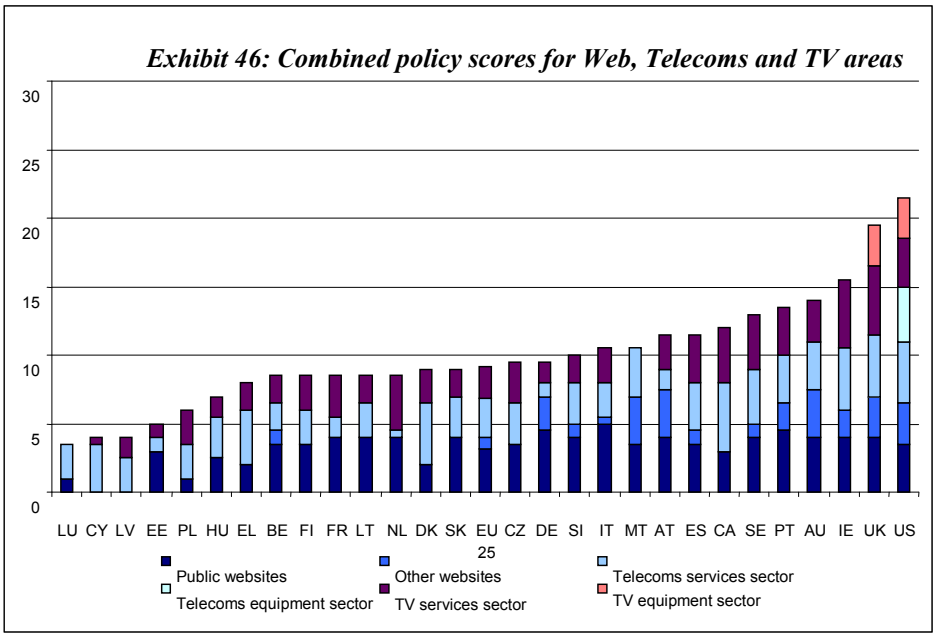
Websites	Tele-Communications	TV	Other
– public	– services sector	– services sector	– computer hardware / software
– other (commercial)	– equipment sector	– equipment sector	– kiosks / consumer audiovisual etc.

A number of countries in the EU are intervening in these areas as it is shown on table 26[185]. However, it appears that generally it is not very effective to pursue e-Accessibility objectives through specific vertical measures in the majority of the EU25 examined Member States.

The comparison below is based on a scoring system that takes into account the nature and strength of actual policy implementation at national level. For each country included in the survey and for EU25 overall, individual policy themes are given policy indicator values on the basis of this scoring system. Countries are scored with values from 0 to 5, with 5 indicating the highest strength and 0 indicating an absence of any relevant policy at all. For each policy theme a dedicated indicator system has been developed specifying relevant policy sub-themes and coding categories respectively. Based on the policy indicator scores achieved, for each country and the EU25 overall, is given a policy rating in terms of a qualitative positioning on a scale ranging from "very weak" to "very strong" [186].

185 MeAC study, *op. cit. ongoing*

186 MeAC study, cit.



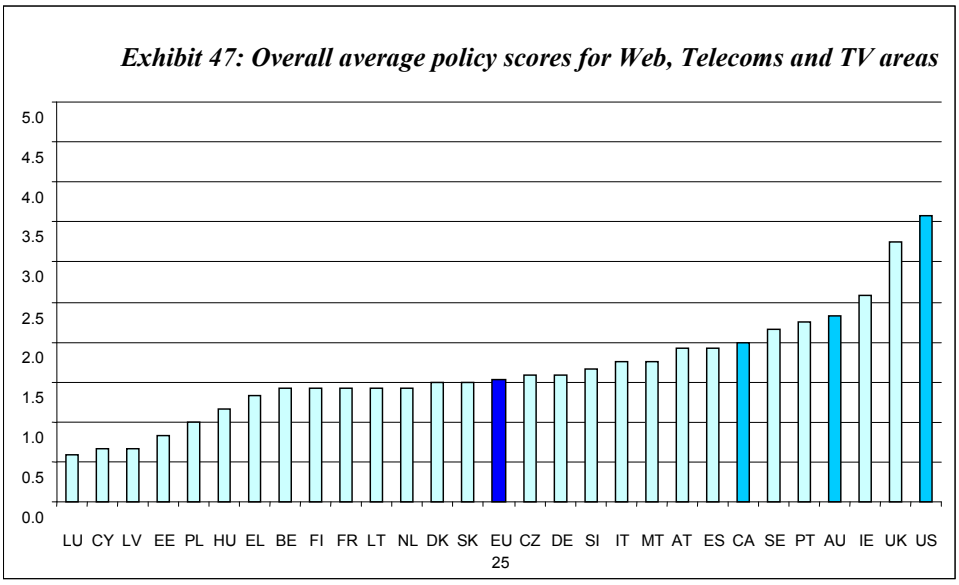


Table 17: Policy rating for Web, Telecoms and TV (number of EU 25 countries)

	Web		Telecoms		TV	
	Public	Other	Services	Equipment	Services	Equipment
Very Strong	3		3		2	
Strong	14	2	6		4	
Moderate	2	2	10		7	1
Weak	2	2	3		8	
Very Weak	4	19	3	25	4	24
Total	25	25	25	25	25	25

Despite the EU Directive, practices in the field of **public procurement** for e-Accessibility also appear fragmented in the EU due to diverging practices among public procurers in Member States:

- more than half of the countries have very weak provisions for accessibility in public procurement for mainstream technologies; in some cases the revised EU Directives have not yet been implemented, in others they have been implemented either without referring to accessibility at all or only mentioning that it is allowed but not encouraging or requiring it

- still a limited number of countries have implemented the Directive or other public procurement laws that encourage / require accessibility but do not seem to show any follow-up activity yet[187]

- one fifth of the countries have implemented the Directive and/or other laws/regulations in ways that require accessibility, and also have implemented support activities in this regard (in one case, Sweden, the approach does not seem to have a legislative/regulatory basis as such, but can nevertheless be considered to be quite a strong one)

Table 18: Assessment of MS use of public procurement to promote e-Accessibility

	EU25 Countries	**Number of EU25 countries**	**EU 25 Average**	**Other countries**
Very weak	BE, CZ, DE, LU, LV, NL, PL, PT, SI, AT, CY, EL, FI	13		AU
Weak	DK	1	EU25	
Moderate	FR, HU, EE, ES, LT, SK	6		
Strong	MT, SE	2		CA
Very Strong	IE, IT, UK	3		US

Policy situation	**Score**
Nothing relevant	0
Potential (only) in legislation	1
Non-legislative policy initiatives (e.g. toolkits)	2
Specific reference / encouragement / requirement - no follow-up / other efforts	3
Specific reference / encouragement / requirement - some follow-up / other efforts	4

[187] SEC(2007) 975, Annex to 24th Annual Report from the Commission on Monitoring the Application of Community Law (COM(2007) 398 final)

Specific reference / encouragement / requirement - a lot of follow-up / other efforts	5
Total (potential) score	5

Horizontal approaches to e-Accessibility mainly refer to legislative, regulatory or other policy measures that address or have clear relevance for e-Accessibility by using:

– Equality / anti-discrimination legislation in:

  - employment
  - goods and services

In **legislation related to employment equality**:

– e-Accessibility is not yet explicitly visible in legislation aimed at establishing conditions for reasonable accommodations in the workplace in most countries (19); a few countries also appear not to have correctly implemented the intended concept

– practically all countries have focused on the anti-discrimination approach rather than positive (anticipatory) duties or initiatives to create systemic change

– almost one-half of countries (11) have limited / weak support mechanisms, such as legal redress

– the majority (17) currently have little or no linkage of employment equality law with public assistive technology service provisions and have so far had no cases on e-Accessibility-related grounds.

Table 19: Policy scoring: legal measures on e-Accessibility based on legislation for employment equality

	EU25 Countries	**Number of EU25 countries**	**EU 25 Average**	**Other countries**
Very weak	EE, EL, IT, LT, LV, PL, SK	7		
Weak	AT, BE, CY, CZ, FR, HU, NL	7	EU25	
Moderate	DE, DK, ES, FI, IE, LU, PT, SI	8		CA
Strong	MT, SE, UK	3		AU, US
Very Strong				

In terms of **equality of access to goods and services**:

– more then two-thirds of EU member states have little or no legislation in place

– amongst those countries that do have some relevant policy provisions, most employ 'traditional' anti-discrimination approaches, with these occasionally augmented by specific positive duties (usually on public sector)

– in a few countries there have been cases taken that have resulted in remedial action by commercial service providers (web site accessibility, subtitling on TV)

– in a few countries there appear to have been some indications of proactive (anticipatory) actions

Table 20: Policy scoring: legal measures on e-Accessibility based on legislation on equality in the provision of goods and services

	EU25 Countries	**Number of EU25 countries**	**EU 25 Average**	**Other countries**
Very weak	CY, CZ, DK, EE, EL, FI, IT, LU, LV, NL, PL, PT, LT, SK, SE, SI	16	EU25	
Weak	HU	1		CA
Moderate	BE, DE, FR, IE	4		
Strong	MT, AT, ES, UK	4		AU, US
Very Strong				

It results that equality policies covering e-Accessibility of goods and services are not well developed in Europe at present and the overall picture does not compare well with other countries such as the US and Australia. A small number of EU countries have forged ahead and have either e-Accessibility-specific equality laws or wider anti-discrimination laws of relevance.

Finally, **horizontal disability anti-discrimination legislation** has been introduced in the UK[188], Ireland[189], and Spain[190]. While in Spain the focus is on the information society, in the UK the Disability Discrimination Act of 1995 applies to disability in general (cf the USA Americans with Disability Act). Though the broad approach appears most effective, there is a risk of fragmentation of such approaches.

In summary as regards horizontal legislation: also in this case measures appear to be fragmented across the EU and they very weakly refer to e-Accessibility provisions or they address them in disconnected manners.

188 Disability Discrimination Act (1995)

189 : Equality Acts and Disability Act (2005)

190 Equal Opportunities, Non-Discrimination and Universal Accessibility of People with Disabilities (2003); also National Accessibility Action Plan (2004-2012)

Exhibit 48: Policy scores on core horizontal approaches

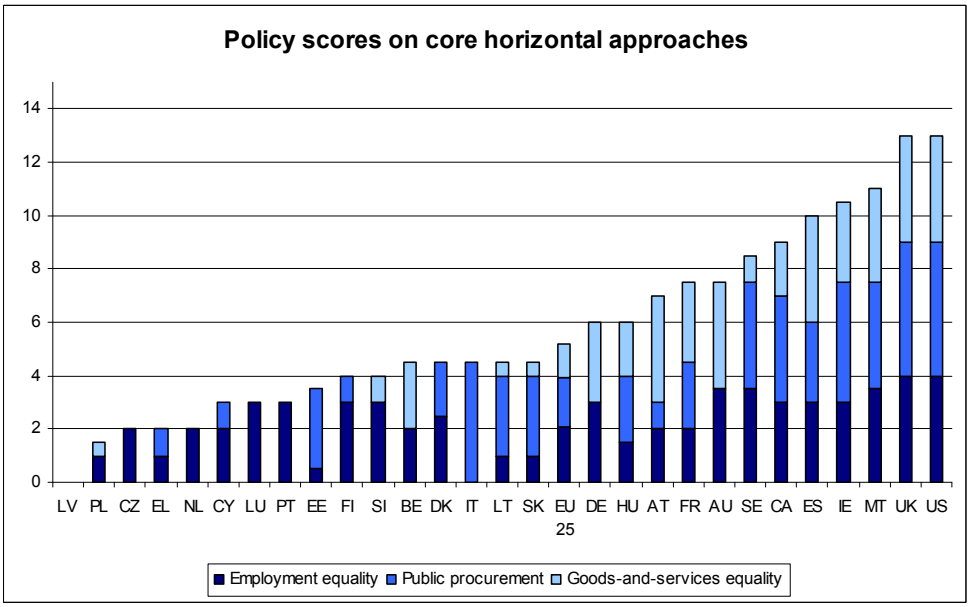
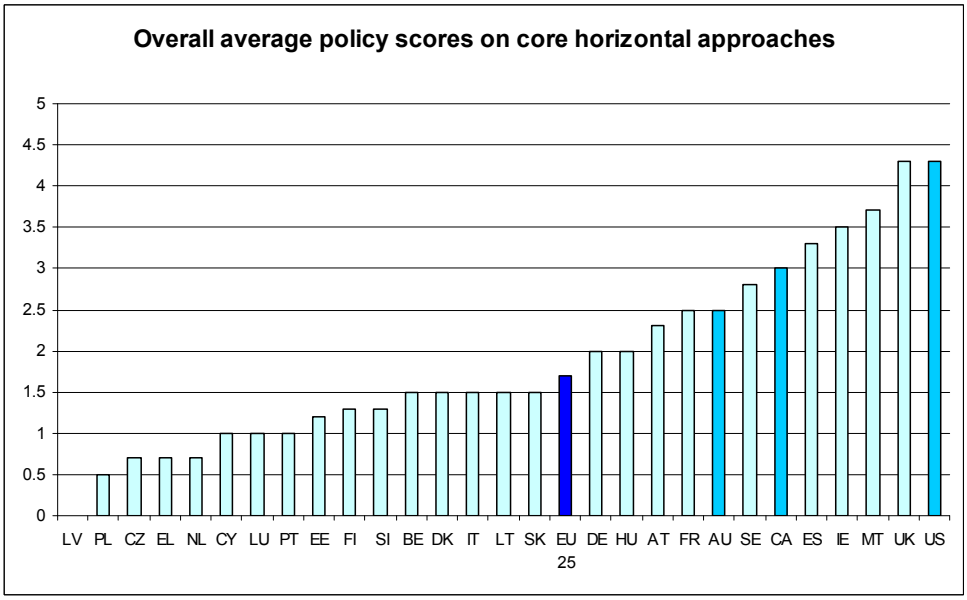


Exhibit 49: Overall policy scores on core horizontal approaches



11.11. Technology challenges in e-Accessibility

Accessibility, once explored in research require standardisation follow-up. This involves the development of standards and conformity assessment procedures.

Many criteria for accessibility need to be developed: such as for ICT devices, protocols, software, design and modelling, as well as services with possible implications on safety, security and privacy.

A question is also how to ensure ***consistent and inclusive accessibility in the future world of converging communications*** – i.e. at the level of design for accessibility (design for all) of

equipment, and at the level of applications or services.

These challenges become even more important due to the expected strong technological complexity in future services. In this regard, barriers to usability of ICT services and tools add up to already existing asymmetries of information that can affect weaker consumers' choice (such as lack of access to technologies, lack of accessibility and user-friendliness, inaccessible devices from PCs and television sets to micro-waves, inaccessible websites, insufficient application of the principles of inclusive design or "design for all").

An important corollary of inclusive design is early cooperation of industry with users. Examples are starting to appear in the industry. Future initiatives to reinforce e-accessibility, including legislative reinforcement, will have to integrate user-industry cooperation in order to avoid that the mistakes of the past are repeated over and again with each new generation of technology. Footnote: in the revision of the e-Communications Framework a consultative stakeholder cooperation within the eCommunication area is foreseen.

In the domain of social participation both access to and the accessibility of content and community services through commonly used platforms must be ensured to allow individuals to fully reap the benefits of ICT and of the services increasingly delivered through ICT channels. For instance, a great potential emerges from tailored content due to progress in terms of interactivity. However, there is an urgent need to improve the accessibility and easiness-to-use of platforms such as digital television and mobile communications for this purpose.

Table 21: depicting the e-accessibility challenge

Theme	Relevant evidence
Public web sites	There are several surveys indicating that levels of accessibility of public web sites have remained rather low, even in countries where dedicated policy does exist in this regard. Such policies do not yet seem to have trickled down to the level of actual implementation to a sufficient extent. Nevertheless, there seems to be a tendency towards higher levels of accessibility achieved in countries that have put legal provisions in place[191] Evidence suggest that there is a need for public policy intervention together with specific incentives gathering the support of organisations wishing to improve services for users with disabilities. In general level of e-accessibility tend to be higher in countries that have already some form of legislation in place (see e.g. UK

[191] UN survey 2006 http://www.nomensa.com/resources/research/united-nations-global-audit-of-accessibility.html;
UK Presidency survey 2005, e-Accessibility of public sector services in the European Union, http://archive.cabinetoffice.gov.uk/e-government/resources/eaccessibility/index.asp;
Survey of 10 voluntary sector websites in the UK, http://www.abilitynet.org.uk/enation10;
Irish base line study on web accessibility http://eaccess.rince.ie/white-papers/2002/warp-2002-00/#sect200000.

	presidency study)
Commercial web sites	In general, the level of accessibility provided by commercial websites seems to be lower when compared with public web sites (as e.g. indicated by the UN survey mentioned above). A 2006 survey of the top 100 UK blue chip companies again suggests that, even where legislation is in place, it takes considerable time until legal measures trickle down to the implementation level.[192] In the USA, for instance the largest 100 commercial websites continue to be slow in adopting generally accepted web accessibility guidelines. A survey of 12 e-banking web sites in Germany Austria and Switzerland suggest that the banking sector has started to recognise the e-Accessibility theme. However none of the 12 sites tested achieved full accessibility.[193]
Telecommunications	Available evidence shows that accessibility, as indicated by provisions in key areas (e.g. relay services, access to emergency number), is very variable across Europe. Many countries appear not to have any. The first INCOM report in 2004 underlined many shortcomings in accessibility. The second report in 2006 revealed that things have not improved since then, due to: a lack of information available in the Member States (e.g. on the situation of disabled users, on the enforcement of the legal provisions) – a lack of full use of the potential of the existing Directives (e.g. no assessment of disabled users' needs, mandatory provisions transposed, flexible provisions not transposed) – many remaining problems (e.g. access to emergency services, text telephones still not interoperable, accessibility to public pay phones, access to directory services)[194] – Studies in the mid-1990s in Europe / UK found that the net costs to operators of (basic) universal service provisions for disabled people seem to be relatively low did not need external funding[195] In the US regulatory assessment exercises have been used to determine how much support (from universal service funds) is needed for costs to operators of particular services (e.g. relay services). The

192 http://www.nomensa.com/news/at-nomensa/2003/7/8-out-of-10-ftse-top-100-companies-fail-in-accessibility.html

193 http://www.customerrespect.com/default.asp?hdnFilename=research_ind _L100_Q3_2006.htm and http://www.defrag.at/docs/bankenstudie_defrag_nr.2.pdf

194 http://www.tiresias.org/phoneability/bridging_the_gap/index.htm
Chapter 3.5.2 Legislative Development in Europe. Pages 145-153.
Chapter 3.5.6. COST 219bis National Telecommunication Regulators Questionnaire. Pages 170-178.
http://www.etsi.org/plugtests/Upcoming/HF/Speakers_presentations/_ETSI_%20INCOM-TCAM.pdf

195 The Costs, Benefits and Funding of Universal Service in the UK, 1995, Cambridge: Analysys Ltd. http://www.analysys.com/www_incs/404/404.asp

	results have shown that associated costs can be supported by all players concerned.[196] Also in the US, the regulator (FCC) maintain that some accessibility requirements (e.g. imposing obligations on mobile operators to stock a certain number of accessible (hearing-aid compatible) models) to be reasonable without producing excessive burden on companies[197] In Australia, interpretation of the law has resulted in provision of text telephones as being compulsory for operators on the same basis as ordinary phones[198].
Telecoms equipment	In the US a law on Hearing Aid Compatibility Act of 1988 and the US Telecoms Act of 1996 refers directly to telecoms equipment sector. The former places a specific obligation on manufacturers, which they appear to have complied with. The regulatory assessment in support of the measure also shows that the obligations imposed were associated to a reasonable administrative burden. The latter imposes somewhat less stringent obligations on the sector.
TV services	In some countries for public sector broadcasters, targets for accessibility (e.g. subtitling) are increasingly being set at quite high levels (incremental over time) by regulators. In many countries there seems to be not much concern about this being too costly to comply. [199] In those countries where such obligations are being placed on commercial channels, targets are being set in line with market share, revenues etc. A law case based on the equality principle has been taken in Austria resulted in the broadcaster agreeing to provide more subtitling for deaf people.
TV equipment	In the US the Television (Decoder) Circuitry Act of (1990) requires manufacturers and importers of TV sets to include accessibility

196 EOP Foundation (2000) US Access Board – Electronic and Information Technology Accessibility Standards: Economic Assessment - http://www.access-board.gov/sec508/assessment.htm. See also for a summary of key outcomes see section 3.3.2.5 of e-Inclusion@EU project - http://www.einclusion-eu.org/files/e-Inclusion_D1-1_analytic-framework_final.PDF

197 http://www.fcc.gov/cgb/consumerfacts/hac.html

198 http://www.tiresias.org/phoneability/bridging_the_gap/index.htm. For a summary of key aspects see: e-Inclusion@EU D1.1, section 3.2.1.2 Interplay between rights-oriented and universal service legislation in Australia - http://www.einclusion-eu.org/files/e-Inclusion_D1-1_analytic-framework_final.PDF

199 http://www.ofcom.org.uk/tv/ifi/codes/ctas/
http://www.nvrc.org/content.aspx?page=10938&section=5
http://www.fcc.gov/Bureaus/Cable/Orders/1997/fcc97279.txt
http://www.fcc.gov/cgb/dro/reminder.pdf#search=%22Reminder%20to%20Video%20Programming%20Distributors%20of%20Obligation%20to%20Make%20Emergency%20Information%20Accessible%20to%22
http://humanrights.gov.au/disability_rights/exemptions/tvcap/rec.htm

	criteria In the UK, the law imposes duties on the regulator to ensure availability of accessible end-user Digital TV equipment, There has been research in the UK showing that current digital television equipment is generally not as usable as analogue television, though there is some variation across the types of platform (cable, satellite and terrestrial) and the types and models of equipment in use. Current set top boxes seem to present greater barriers in use than integrated digital televisions (IDTVs). For the UK it was estimated that based on today's equipment, an additional two million people (4.4% of those able to access analogue television) could be excluded from simply viewing the new digital services using digital terrestrial television set top boxes at switchover. A further 700,000 people (1.6% of those able to access analogue television) would be excluded from using advanced features such as digital text and interactive services. Conversely, through features such as Audio Description, DTV can also make television more accessible to some people with reduced capability.[200]
Computer hardware and software	Section 508 of the US Rehabilitation Act refers to the use of e-Accessibility requirements in pubic procurement. It has triggered the creation of innovative solutions. This has been not the case in Europe where industry players often state that diverging requirements across Member States make the cost of innovation for accessibility high.
Kiosks/ ATMs (cash dispensers)	A considerable number of 'talking' ATMs (for visually impaired) seems to have been deployed in the US and Australia, mainly driven by the equality legislation. Seemingly, very few talking ATMs have been deployed in Europe, due to very little relevant legislation in this area.[201]
Public procurement	Evidence from the US suggests that the approach can have positive impacts (e.g. reports by Department of Justice on section 508 implementation). Public bodies have been including accessibility in their procurements and the market has responded (e.g. more visible attention to accessibility, specific efforts to make products compatible

200 http://www.acessibilidade.net/tdt/Digital_TV_for_all.pdf
http://www.digitaltelevision.gov.uk/pdf_documents/publications/Digital_ TV_for_all_appendix_e.pdf
http://www.digitaltelevision.gov.uk/pdf_documents/publications/dtv_for_all_ news_release_sept_03.pdf
http://www.ofcom.org.uk/consult/condocs/accessservs/litreview.pdf#xml=http://search.atomz.com/search/pdfhelper.tk?sp_o=8,100000,0
http://www.computing.dundee.ac.uk/staff/mrice/UAIS%20paper.pdf

201 http://www.afb.org/afbpress/pub.asp?docID=aw040106
http://en.wikipedia.org/wiki/Talking_ATM
http://www.nfb.org/Images/nfb/Publications/bm/bm99/bm990704.htm
http://www.atmmarketplace.com/article.php?id=2620

	with the US Federal requirements) A study in the US found that the additional cost burden is not significant in many areas for procuring organisations and for industry (to meet the requirements, although there seem to differences according sectors (hardware, software etc.)[202] Available (limited) evidence on public procurement in Europe suggests that very little attention is being given to e-Accessibility so far in day-to-day procurements. On exception is procurements related to public web sites (in some countries). Potential barriers (amongst procurers) seem to include lack of awareness, lack of skills, lack of support materials (toolkits), concerns about possible costs, concerns about practicability (can the market deliver), etc.[203]
Employment equality	Despite not many court cases have yet been taken by disabled people on e-Accessibility grounds in Europe, available evidence show that many in the workforce and outside the workforce (especially 50+) have (unmet) e-Accessibility problems[204]
Equality of access to goods and services	One point in case in this area is website accessibility. Following general principles on equality of access to goods and services, some example of accessibility of commercial websites are present in Europe, US, and Australia. However, the majority of public and commercial websites (around 95%) are not conforming to web accessibility guidelines Regulatory initiatives imposing positive duties in relation to accessibility of ATMs seem to have driven to more concrete results in the retail and banking systems in the US and Australia.
Assistive Technology	A recent study indicates that the availability of Assistive Technologies to the end user vary significantly across Member States, and that fragmented legal and regulatory frameworks seems to prevent many consumers from benefiting from Assistive Technologies.[205]

202 EOP Foundation (2000) US Access Board – Electronic and Information Technology Accessibility Standards: Economic Assessment http://www.access-board.gov/sec508/assessment.htm

203 http://www.verva.se/upload/english/accent/Barriers%20and%20Facilitators%20to%20the%20Inclusion%20of%20Accessibility%20in%20Public%20Procurement%20of%20ICT.pdf

204 http://www.microsoft.com/enable/research/default.aspx

205 http://ec.europa.eu/employment_social/disability/datasheet_en.pdf

12. ANNEX 6: PRELIMINARY ASSESSMENT OF POLICY OPTIONS FOR E-ACCESSIBILITY

12.1. What are the main options to achieve policy objectives for e-Accessibility?

As further illustrated in Annex 4, the current situation is characterised by a regulatory and industry landscape that have not fully come forward to deliver the promise of e-accessibility. This section analyses, building on available reports, whether the EU level should or not reinforce its intervention e-accessibility to better fulfil its mission in this area. In particular, it addresses the need for further legal action, as this was specifically called for in the 2005 Commission Communication on e-accessibility. Besides, the experience of many countries shows that legal requirements are necessary to ensure e-accessibility.

The implementation of measures addressing e-Accessibility directly (e.g. in the e-Communications regulatory frameworks) or indirectly (in all other legal frameworks such as legislation based on non-discrimination or in procurement practices) is insufficient or absent due to lack of specific e-Accessibility implementation requirements, lack of necessary technical standards, weak definition of beneficiaries and targets, and lack of schemes for monitoring implementation.

Annex 5 provides for an extensive analysis of legal actions on e-Accessibility in the Member States. A high degree of differentiation appears in terms of legal measures and accompanying policies for e-Accessibility. Efforts have been fragmented and there is a risk of growing fragmentation of the regulatory landscape across Member States, with the perceived and demonstrated risks of fragmentation of the internal market for accessible ICT[206]. Evidence also shows that, when EU principles or actions exist, policy measures on e-accessibility at Member State level are better coordinated and present a higher degree of coherence. The following options are considered for acting at EU level.

(1) Continuing the status quo in e-Accessibility and relying purely on market dynamics to ensure implementation of currently non-binding e-Accessibility provisions;

(2) Pursue some specific but isolated actions with limited targeting, such as fostering limited cooperation among Member States through information sharing and reinforcing research and innovation, with no additional coordination and integration efforts (e.g. in regulatory terms) and with only limited targeting of action to specific groups at risk and specific technologies. Pursue some specific efforts in mobilising stakeholders and reinforcing research and innovation activities

(3) Enhance synergies through a common integrated strategy. Propose to explore ways to reinforcing specific and horizontal regulatory approaches to e-Accessibility and accompanying non-regulatory measures such as innovation pilots

12.1.1. Option A – Continuing the status quo in e-Accessibility

This option assesses if current legislation and policies referring to e-Accessibility at EU and national levels have produced positive results in terms of efficiency and effectiveness,

[206] This is supported by industry concerns and also finds backing in the results of the on-line consultation supporting this impact assessment

coherence and completeness and whether existing measures are sufficiently technology neutral and future-proof.

The current regulatory framework also leaves ample scope for stakeholders to develop common solutions for e-accessibility. However, engagement of stakeholders has been frustrated by the open-ended characteristics of current legislation, the lack of coordination among Member States[207] and the lack of a common level-playing-field conducive to the development of collaborative or common technical solutions.

12.1.2. Option B – Pursuing specific and isolated efforts for enhancing Member States cooperation, mobilising stakeholders and reinforcing research and innovation activities

This option refers to opportunities to enhance coordination across Member States. It is a response to the request by the Inclusive Communications Committee (INCOM) subgroup[208] that -in its 2004 report- recommended the Commission to strengthen reporting systems from *Member States* and require them *to provide more detailed information* in order to assess the transposition and enforcement of the e-Accessibility provisions of the Directives into national law[209].

This option also considers ways to best mobilise stakeholders to pursue e-Accessibility goals when developing technologies. It would also support the strengthening of publicly funded investments in research and innovation for e-Accessibility in particular in the Framework Programmes (currently the Seventh, FP7) and the Competitiveness and Innovation Programme (CIP).

12.1.3. Option C - Enhance synergies through a common Integrated strategy. Propose to explore ways of reinforcing specific and horizontal regulatory approaches to e-Accessibility and accompanying non-regulatory measures

This option considers as baseline the ongoing reinforcement of e-Accessibility provisions in the regulatory framework for e-Communications[210]. It proposes to explore new horizontal legislation on e-Accessibility as well as non-regulatory measures such as research, standardisation support, and benchmarking.

As a baseline, the Commission will defend its proposals e-Accessibility in the inter-institutional discussions on the review of the e-Communications directives. Previously, the

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207 This has been the case in the framework of activities of the TCAM Member States' committee relative to the application of Directive 1999/5 EC on Electronic terminal equipment

208 Reporting to the Communications Committee (COCOM group) of Member States representatives on e-Accessibility issues

209 On specific issues such as the understanding and measurement of accessibility of public pay phones, the INCOM group recommended that the Commission provides guidance on the issues involved in assessing accessibility in order to get a common understanding at European level and to consider launching a study at European level to develop quality parameters to assess the performance of undertakings in the provision of services to disabled users

210 The review of the eCommunications directives proposes already the reinforcement of e-accessibility principles and the strengthening of provisions for making available 112 emergency services to disabled persons. See Impact Assessment of the proposed revision of the regulatory framework for Electronic Communications

results of the call for input on the review of the e-Communications directives[211] showed the need for such reinforcement of e-Accessibility provisions. In addition, the Commission intends to publish a Communication on universal service in 2008.

– Another relevant measure to be taken into account in the baseline relates to the implementation of e-accessibility provision in the new Directive on audio-visual media (AVMS), amending the Television Without Frontiers Directive. This provision states that Member States shall encourage media service providers under their jurisdiction to ensure that their services are gradually made accessible to people with a visual or hearing disability[212].

This option explores the need and benefits of more horizontal and wide-ranging legislative measures on e-Accessibility in the information society (barrier-free information society), to allow for a more comprehensive and effective approach. This approach is to be considered as complement to the baseline vertical regulatory approaches mentioned above aimed at adjusting current specific legislation for the purposes of e-Accessibility (in particular in the e-Communications Directives). It is aimed at enhancing the coverage, scope, application and future-proofness of regulatory initiatives in the field of e-Accessibility. The proposed approach in this option would contain general principles, requirements and implementation mechanisms, and will allow for the necessary flexibility in national transposition.

Should this option be retained, a further impact assessment in 2008 will be necessary to decide on the specific regulatory mechanisms for implementation (e.g. voluntary vs. mandatory standardisation; voluntary vs. mandatory conformity assessment procedures; technical vs. functional specifications etc.) building on a number of studies and a public consultation.

This option also suggests accompanying measures, either for the implementation of legislation or of a non-regulatory nature. Already ongoing is the strengthening of e-accessibility through standardisation for the application of EU public procurement legislation, notably by executing the current mandate for standardisation in the field of e-Accessibility of ICT products and services as initiated by the European Commission.

In the second category of accompanying measures are research, innovation, benchmarking and promotion activities. Research and development support at EU level would be continued in the R&D Framework Programme, i.e. research for e-accessibility in mainstream (general purpose) technologies and assistive technologies research. In the Competitiveness and Innovation Programme support for e-accessibility validation, interoperability and deployment

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211 See the responses to the public consultation on the Communication COM(2005) 203 and the Communication regarding the outcome of the Review COM(2006) 163, available at: http://ec.europa.eu/information_society/policy/ecomm/info_centre/index_en.htm
In the course of the 2006 review of the regulatory framework, the INCOM group recommended that the Commission examines the possibility to strengthen the following articles of the Directives:
Article 7(2) of the Universal Service Directive which relates to the equivalent choice for disabled users to that enjoyed by other end-users;
Article 31 of the Universal Service Directive which relates to the must carry obligations and access by disabled users to radio and TV programmes;
Article 33 of the Universal Service Directive which relates to the consultation of disabled users.

212 Amended proposal for the TWFD, Political Agreement, May 2007 http://ec.europa.eu/avpolicy/docs/reg/modernisation/proposal_2005/avmsd_cons_may07_en.pdf

would continue, e.g. for pilots accompanying common policy goals such as accessible convergent communications, accessible emergency services and accessible digital television. Benchmarking, common agenda setting ('roadmaps') and promotion are activities that would be continued amongst others in the current cooperation with Member States (i2010 e-inclusion subgroup) and industry/users (e-Inclusion Partnership). The focus would be on priority e-accessibility challenges such as web-accessibility.

12.2. Policy implication/impacts of different options

12.2.1. Assessment of Option A – Continuing the status quo in e-Accessibility

Efficiency and Effectiveness. A range of e-Accessibility measures have begun to emerge at EU and Member State levels. Given the wide range of relevant ICT products and services, and the various sectors and activities within which e-Accessibility issues arise, it is not surprising that a variety of regulatory approaches to e-Accessibility have emerged across Europe and internationally. Three types of approaches can be identified:

- e-Accessibility-specific legislation
- Sector legislation with relevance for e-Accessibility
- General legislation with relevance for e-Accessibility.

Some examples of relevant activity at EU-level and in Member States are presented in table 6-8 for each of the three approaches. Several national legal measures result from the transposition of EU Directives, notably from the e-communications Directives.

Member States have wide discretion with regard to e-Accessibility measures, Moreover, when EU provisions are transposed, the experience shows that the specific rules are implemented and interpreted in different ways in different Member States.[213] A more extensive analysis of the situation in Member States is presented in Annex 5.

As a result, there is a European patchwork of national measures for disabled users as is highlighted in the reports of the INCOM ("Inclusive Communication") sub-group of the Communications Committee[214], which has investigated and analysed these issues across the EU since 2003[215]. Furthermore, the implementation of the provisions of the Directive into national legislation has often appeared to be a "copy-paste" exercise of the compulsory provisions, while the potential of the non compulsory ones have not been exploited.[216]

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213 See especially the 11th and 12th Commission implementation reports on the regulatory package.

214 INCOM is a sub-group "Communication Committee" (COCOM), see: http://ec.europa.eu/information_society/policy/accessibility/policy/legislation/index_en.htm

215 See the latest, 2006 report by INCOM, available at: http://forum.europa.eu.int/Public/irc/infso/cocom1/library?l=/public_documents_2006/cocom06-16_incom_1/_EN_1.0_&a=d

216 As a subgroup of the Communications Committee (COCOM), the Inclusive Communications group (INCOM) concentrates on the access to and use of electronic communications by users with disabilities. In January 2004 a report was issued by the group that identified the major problems that people with disabilities face when using electronic communications as well as the relevant applicable legal provisions from the electronic communications package ensuring protection of the interests of end-users, amongst others those of disabled users. In April 2005, a questionnaire was sent to the Member

The lack of EU e-Accessibility standards results in few administrations actually procuring accessible ICT tools and services making use of the possibilities of the European Directive on Public Procurement. If national authorities intend to procure for accessibility, they proceed according to nationally set (or *ad-hoc*) requirements[217], with a potential negative impact on development of widespread technologies for accessibility.

Current evidence also shows a very low degree of coordination across industry players in the field of e-Accessibility which have hindered industry agreement in a number of areas highlighted in the current regulatory framework for e-Accessibility and in the legislation for Radio & Tele-Communications Terminal Equipment[218].

In option A therefore efficiency and effectiveness would be severely limited.

Completeness and consistency. There is not enough comprehensive and a coherent action to address the needs of people with disabilities, e.g. several legal requirements in place cover only some technologies but not other. One of the probable reasons for this is the continued lack of information in the Member Sates about the situation of disabled users under this option.

This situation does not correspond to the needs of the users with disabilities in the increasingly convergent environment. Instead, it leads to a lack of access for disabled users in some cases, and to fragmented markets for accessibility solutions in other cases, thereby also hindering the development of economies of scale necessary for the production of equipment for disabled users at an affordable price.

Furthermore, access to services that are standard for many such as the European emergency number 112 would are not always be guaranteed for the disabled users notably deaf persons, who have to deal with different emergency numbers.

Regulatory uncertainty would also be reinforced by lack of proper definitions of scopes, beneficiaries and legal principles governing e-Accessibility at EU and national level.

Completeness and consistency are not achieved with option A.

Future-proofness. The open-ended legal requirements for e-Accessibility and the fragmentation emerging across EU countries does neither guarantee technology neutrality of

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States through COCOM on “the Electronic Communication Package: issues related to disabled users”. The aim was to assess the implementation of the legal provisions dealing with disabled users in the Member States, to ensure follow-up of the key problems identified in 2004, and to identify best practices. Replies were received from 23 Member States and from Norway.
The information provided through the questionnaire reveals that the problems identified in the 2004 report remain, confirming the frequently disadvantaged situation of disabled users in Europe, in relation to availability, choice, quality and price of electronic communications. Furthermore, there is very often a lack of information in the Member States on the practical situation of disabled users vis-à-vis access to and use of publicly available telephone services, and of the problems they are confronted with in everyday life. As a consequence, the national provisions do not – or seldom – address specifically disabled users’ concerns.

[217] The European Economic and Social Committee in its opinion TEN/295 (30 May 2007) on "Future e-Accessibility Legislation" invites the European Commission to propose reinforcing public procurement legislation by obliging public procurers to e-Accessibility requirements

[218] Directive 1999/5/EC

specific requirements imposed at national level, nor does it favour industry investments to improve the current situation. Therefore, any attempt to invest in innovation for e-Accessibility is frustrated in Europe by the current fragmented and uncertain regulatory framework on the issue.

The assessment of legislation following the adoption of the Disability Act (and its section 508 on e-Accessibility) in the US has fostered the emergence of a new market for accessible ICT and the establishment of new innovative concepts. The resulting benefits are deemed to have outpaced the initial costs of requiring technologies to be accessible[219].

Technology-neutrality and future-proofness are not secured through option A.

Other impacts. The current fragmented European regulatory landscape, will potentially favour imports of accessible ICT products and services from third countries at the detriment of mainstream and assistive technologies industry in Europe. Besides, often geographically localised requirements for e-Accessibility will result in monopolistic compartmentalisation of the markets with negative effects on already weaker users and producers. Accessible ICT services will continue to be fragmented and few providers offer them. Costs for assistive technologies will remain high and there will be no plug-and-play solution.

The ICT sectors will face increasingly new costs for complying with different national requirements. Service providers will not bear the costs of offering e-Accessible services, but will miss the opportunities to innovate services for the wealthy consumers of the ageing society[220].

Annex 5 gives an indication of the e-Accessbility situation across Europe.

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219 Access Board, *op. cit., and* Five-Year Assessment of IST-RTD (1999-2003), Independent Panel Chaired by Minister Gago, 2004, http://ec.europa.eu/dgs/information_society/evaluation/data/pdf/5_y_a/ist_5ya_final_140105.pdf

220 Ageing well in the Information Society. An i2010 Initiative. Action Plan on Information and Communication Technologies and Ageing COM(2007)332, and Staff Working Paper SEC(2007)811, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52007DC0332:EN:NOT

Table 22: e-Accessibility-specific legislation

Theme	Examples	
	EU	**Member States**
Horizontal and sector-specific e-Accessibility legislation (e.g. e-Accessibility Acts)	No direct legislation yet, as such, but relevant measures include: • The adopted Riga Ministerial Declaration (2006) • The issued Mandate 376 to European Standards Organisations on e-Accessibility standards and toolkit for public procurement including guidelines for possible use of accessibility requirements • Communication on e-Accessibility (2005) • Ministerial Resolutions on Public Web Site Accessibility (2002) • eEurope 2002 and 2005 commitments	**ES**: Equal Opportunities, Non-Discrimination and Universal Accessibility of People with Disabilities (2003); also National Accessibility Action Plan (2004-2012) **IT:** Law n. 4, January 9, 2004 - Provisions to support the access of disabled people to information technologies. **PT**: RCM nº110/2003 - National Programme for the Inclusion of Disabled People in the Information Society **SI**: National Guidelines to Improve Built Environment, Information and Communications Accessibility for Disabled Persons (2005)

Table 23: Sectoral legislation

Theme	Sub-theme	Examples	
		EU	**Member States**
Sector-specific legislation relevant to e-Accessibility	Telecoms	• Framework and Universal Service Directives (2002) • RTT&E Directive (1999)	**DK**: Consolidated Act No. 784 of 28 July 2005 on Competitive Conditions and Consumer Interests in the Tele-Communications Market - extensive provisions on e-Accessibility, linked to EU Directives **SK**: Act No. 610/2003 Code, on Electronic Communications, effective since 1.1.2004 - various measures on e-Accessibility **SE**: Swedish National Post and Telecom Agency (Post- och Telestyrelsen, PTS) is responsible for meeting disabled persons' need for special tele-Communications services (Ordinance (1997:401) with instructions for the National Post and Telecom Agency, section 5(1).). The handling of tele-Communications services for disabled persons, to the extent found necessary by PTS, is put out to tender so that interested operators can submit bids. **SI**: Electronic Communications Act (2004) - various measures on e-Accessibility **UK**: Universal Service Obligation; Communications Act (2003) - various measures on e-Accessibility
	Broadcasting	No direct legislation yet, as such. Reference to e-accessibility is made in the proposal for the review of	**DK**: New public service broadcasting contract between Ministry of Culture and DR signed 3rd January 2007 - places requirements in broadcaster contract to use new technologies to

		the Television Without Frontiers Directive	support e-Accessibility in (digital) TV **ES**: Digital TV Act (2005) - includes e-Accessibility requirements **IE**: Broadcasting Act (2001) and associated BCI Access Rules - places requirements for e-Accessibility of TV broadcasts (closed captions, sign language, audio description) **NL**: Media besluit, nr. 06.002565. 19-9-2006 - imposes e-Accessibility obligations **UK**: Communications Act (2003) - various measures on e-Accessibility in broadcasting (closed captions, sign language, audio description)
	e-Government	• Riga Declaration (2006) - Inclusive e-Government commitments	**AT**: e-Government Act (2004) - has strong web e-Accessibility provisions **CZ**: Act on Public Administration Information Systems No. 365/2000 Coll. as amended by the Act No. 81/2006 Coll. - imposes web accessibility obligations **ET**: Estonian State IT Architecture (ver 1.01, 14.01.2007) and IT Interoperability Framework (ver 2.0, 15.09.2005) - imposes e-Accessibility obligations for public web sites **LT**: Resolution No. 1054, amending the 18 April 2003 Resolution No. 480; and methodological recommendation for design implementation and maintenance of websites for disabled, 31 March 2004, T-40. **NL**: Web guidelines (Cabinet decision) - include e-Accessibility requirements **SK:** Act No. 275/2006 on Information Systems of Public Administration and the decree of the Ministry of Transport, Post and Tele-Communications No. 1706/M-2006 from 1 August 2006 on standards for information systems of public administration No. 1706/M-2006 issued on 14 July 2006 by the Ministry of Transport, Post and Tele-Communications -impose e-Accessibility obligations for public web sites

Table 24: General legislation

Theme	Sub-theme	Examples	
		EU	**Member States**
General legislation relevant to e-Accessibility	Anti-discrimination / Equality	• Amsterdam Treaty (Article 13) • Employment Equality Directive (2000)	**AT**: Disabled Persons Equal Opportunities Act (2005) - has relevance for public and private web site accessibility, also broadcasting **FR**: LOI n° 2005-102 du 11 février 2005 pour l'égalité des droits et des chances, la participation et la citoyenneté des personnes handicapées - has relevance for public web sites, télécoms, broadcasting **IE**: Equality Acts and Disability Act (2005) have direct and indirect relevance for e-Accessibility **MT:** Equal Opportunities Act (Disabled Persons) of 2000 **-** has implications for public and private web accessibility **SI**: Vocational Rehabilitation and Employment of Disabled Persons Act (2004) - e-Accessibility issues under the "reasonable accommodation" are covered by Article 37. **UK:** Disability Discrimination Act (1995) - implications for web accessibility
	Public procurement	• Public Procurement Directives (2004) • Requirements for accessibility in the application of the Structural Funds (Article 16, Council Regulation (EC) No 1083/2006)	**DK**: Public Procurement Toolkit to help procurers address e-Accessibility - National IT and Telecom Agency **IE**: Toolkit for accessible ICT procurement developed by National Disability Authority **SE**: VERVA (previously Statskontoret) addresses e-Accessibility in public procurements of ICTs - has worked in this field for a number of years **UK:** The DDA as amended to impose a new legal duty - Disability Equality Duty (DED) - on most public authorities. Code of Practice for government departments includes accessibility of new IT systems and the redesign of departments' websites by external contractors. Also: Publicly Available Specification (PAS 78, 2006) - information document on procuring accessible websites, a guide to how to go about purchasing and evaluating an accessible website.
	Consumer protection	No direct legislation yet, as such, but relevant measures include: • support for work of consumer organisations on e-Accessibility in standardisation (ANEC)	**AT**: Governing Provisions to Protect Consumers Act (Konsumentenschutzgesetz 2006) - relevant for e-Accessibility, although does not directly mention it
	Copyright	• Copyright Directive (2001)	**Various**: copyright exemptions to enable accessibility for disabled people

12.2.2. Assessing option B – Pursuing specific and isolated actions for enhancing Member States and stakeholder cooperation and reinforcing research and innovation activities

Efficiency and Effectiveness. In its 2004 report, the Inclusive Communications subgroup of Member States INCOM subgroup[221] invited a strengthening of coordination across Member States through a reporting mechanism in order to assess the transposition and enforcement of the provisions of the eCommunications Directives into national law[222]. This plea was also considered in the 2005 Communication on e-Accessibility.

However, most of the e-Accessibility provisions in EU legislation stayed unimplemented and monitoring schemes are weakly activated. In this situation and following a proportionate approach, this option suggests establishing a framework for facilitating Member States' exchange of information, best practices and know-how to implement accessibility.

The European Commission has responded to this challenge by calling Member States to exchange their knowledge and experience on e-Accessibility through the i2010 e-Inclusion Subgroup of Member States. The e-Inclusion subgroup has been working during 2006 and has made possible to further assess the situation in the two key areas of web accessibility and accessible ICT. Annex 5 provides further details on the Member States' activities on e-Accessibility. National reports on e-Accessibility are available at the discussion portal http://www.ipolicy.eu. *Member States' engagement* can be further reinforced through *enhanced monitoring of legal implementation as well as of quantitative targets* on web accessibility of public sector websites and accessible ICT. This monitoring exercise, however, also relies on the nature of legislation to be monitored and implemented. Hence the major challenge for this option to realise impacts is the lack of compulsory measures and hence the lack of incentives derived from them.

The fact that e-Accessibilty is referred to in national legislative provisions or in public procurement legislation, increases the effectiveness and the impact thereof. For example, according to recent findings[223], web accessibility of public websites is somewhat more strongly stronger in countries where legislation on the subject is present. On the contrary, in countries where only political commitment has been stated like in the Riga Ministerial Declaration, the situation has not improved.

As far as *stakeholders' engagement* is concerned, current legislation has not provided the sufficient incentives for industry to develop accessible solutions. For example, according to recent assessments[224]:

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221 Reporting to the Communications Committee (COCOM group) of Member States representatives on e-Accessibility issues

222 On specific issues such as the understanding and measurement of accessibility of public pay phones, the INCOM group recommended that the Commission provides guidance on the issues involved in assessing accessibility in order to get a common understanding at European level and to consider launching a study at European level to develop quality parameters to assess the performance of undertakings in the provision of services to disabled users.

223 Study on Measuring progress of eAccessibility in Europe (MeAC), 2007 (S 21-022483).

224 MeAC study, *op. cit., ongoing*

– The percentage of subtitled audio-visual programming varies widely (from 2.5% to 95%)*[225]

– The percentage of sign-language programming is a lot less than for subtitling and varies considerably (from less than 0.5% to 5%)*

– Broadcasting with audio description ranges from less than 1% to more than 10%*

– Considerable fragmentation across product ranges refers to built-in accessibility in PCs and software

Lengthy tri-partite discussions, over many years, between users, industry and institutions on setting the conditions for e-Accessibility of "total conversation services" and accessible digital televisions have not delivered results efficiently and timely.

This option foresees that ongoing efforts to establish common understanding between industry[226] and users will be continued[227]. Activities are already undertaken in the domain of accessible digital television, total conversation, and the establishment of a Master Programme in the field of Design for All. Common understanding between users and ICT suppliers will enhance accessibility in ICT equipment and services and will result in higher acceptability by users for the benefit of target groups, the disabled and the elderly, but also for mainstream consumers.

This dialogue will also encourage technological innovation and the grasp of new design concepts based on embedded accessibility/usability criteria from the start. However, these efforts currently tackle specific technologies and do not yet address the overall e-Accessibility landscape.

According to this option, actions will also be reinforced in the field of EU publicly funded investments in research for e-Accessibility in FP7 and innovation in CIP. Efforts are being reinforced through the promotion of value chain innovation approaches using CIP funding. This will foster the concept of a European research area in the field of e-Accessibility complemented with large scale test projects so as to enhance technological uptake and replicate successful experiences.

Option B can be expected to improve the effectiveness of existing e-accessibility regulatory measures and of non-regulatory actions, but to a limited extent and only at significant coordination costs. Efficiency is therefore not likely to be achieved.

Industry and users feedback expresses that coordination is expected to be further enhanced by the enhancement of legal clarity and the introduction of proportionate and common legal frameworks (i.e. Option C).

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225 * depending on Member States and on whether broadcasters are public or commercial

226 EICTA e-Inclusion White Paper, 2006 http://www.eicta.org/index.php?id=33&id_article=75; EICTA e-Accessibility White Paper, 2005, http://www.eicta.org/index.php?id=242&id_article=88

227 To this purpose an e-Inclusion Partnership currently gathers representatives from industry (EICTA) and civil society (EDF and AGE)

Completeness and coherence. Since a number of countries are adopting legislation and these approaches are based on different rationales, they very rarely contribute to a coherent framework. Increased coordination would have the potential to enhance positive impact.

Positive impacts can also be produced by encouraging the role that EU funded research and innovation can play in clustering stakeholders along common research and innovation platforms, thus increasing the leverage of funded projects and laying down the conditions for further impact. Similarly, increasing the awareness of the economic benefits of e-Accessibility in terms of inclusion and of the innovative concepts related to it in design, in technology simplification can produce some of the incentives for industry to enhance e-Accessibility in their products and services.

However, strengthening coordination will imply reinforcing legislation (option C) since simple peer-review mechanisms and exchange of practices through existing Member States committees do not bring about sufficient results. For example, problems identified already in 2004 by the INCOM report do not seem to have been addressed to date in areas such as emergency calls, as there is still no comprehensive solution in all Member States for disabled users to call the single European emergency number 112. The accessibility to public pay phones is not addressed in a harmonised way in the Member States. Text telephones used by deaf users are not interoperable across Member States or across networks.

Some countries are showing examples of ***best practices*** by adopting specific measures in the interests of disabled users. For instance, some Member States impose special tariffs to ensure affordability for disabled users; some countries propose text telephones and relay services for deaf and hearing impaired users; other countries impose a legal obligation to provide terminal devices enabling hearing impaired people to access publicly available telephone services, free access to information services for visually impaired users, special telephone number for deaf users to access 112; some other countries impose an obligation upon service providers to provide copies of contracts and bills in a form suitable for visually impaired customers.

The reinforcement of best practice sharing and mutual policy learning through benchmarking and "Riga Dashboard" indicators will certainly be conducive to *imitation processes* across Member States, thus expanding positive impacts. However, unless well coordinated replication processes are undertaken such as in e-Accessibility requirements agreed at EU level for use in public procurement, these measures might result in market fragmentation.

Option B may thus improve coherence by using common approaches but also risks greater fragmentation through varying national legislation. It is may improve completeness by covering all aspects of e-accessibility but only at great coordination costs.

Future-proofness. The reinforced coordination of Member States policies –if accompanied by the use of common requirements for e-Accessibility- can foster innovation in the field of ICT tools and services. However, the impact might be limited if coordination has to exclusively rely on good will. Impacts might also risk being selective on applications and technologies depending on the specific areas Member States and stakeholders agree to cooperate on.

This approach –despite relying on proportionality and flexibility- might also be less future-proof since new and emerging technologies will not necessarily be covered by e-Accessibility principles from the design phase. This option has no mechanism in place to systematically

and early-on safeguard accessibility as and when new ICT technologies arise. E-Accessibility is likely to remain an after-thought, and extra efforts to catch-up with technology developments are necessary or e-accessibility will simply not be achieved, i.e. persistent digital accessibility gaps occur.

Technology future-proofness is therefore not likely to be much improved through option B.

Other impacts. Enhanced coordination and stakeholders-led initiatives on e-Accessibility can lead to technological innovation. For example the use of coordinated practices in public procurement[228] for accessible ICT can constitute a potential basis for the establishment of new market opportunities in this area. Similarly, *industrial cooperation on specific applications might translate into commonly agreed parameters for accessibility, hence in larger market uptake for products with positive benefits in economic terms*. However, this option must be measured against the risk of pursuing technological choices and focusing exclusively on specific applications rather than enhancing e-Accessibility as a principle which is embedded in all ICT and related services.

12.2.3. Assessing Option C - Enhance synergies through a common integrated strategy. Proposing to explore ways of reinforcing specific and horizontal regulatory approaches to e-Accessibility and accompanying non-regulatory measures

Efficiency and Effectiveness. The Commission proposals on the review of the e-Communications Directives already proposes strengthening the e-Accessibility provisions in favour of **disabled users and older people** with special social needs. This should generally ensure that this significant part of the population would better benefit from using and accessing a number of ICT tools and services, notably electronic communications. This, in turn, is a key factor to address employability or social participation deficits in these population segments. Increasing employment rates would facilitate the development of a virtuous circle towards autonomy and less reliance on social security. The Commission intends to publish a Communication on universal service in 2008.

The establishment of EU common standards on e-Accessibility is necessary to encourage the sufficient scale for accessible technologies to be economically viable and to foster innovative and accessible applications for wide use. The possible use of e-Accessibility standards in *public procurement* of ICT tools and services has the potential to enhance legal and technical certainty in the EU for the benefit of both public administration and for industry. Clearer EU wide requirements for e-Accessibility will also benefit the direct addressees of publicly procured ICT tools and services such as public service employees and users and produce some indirect positive effects on commercial services, if imitation processes take place.

The article on e-accessibility in the *AVMS Directive* can have positive effects as it foresees a gradual effort to provide for accessible audio-visual services. There could result positive impacts for users (in terms of mere accessibility and simplicity of digital services), as well as innovation and potentials for multi-platform use of accessible content.

A preliminary assessment of the possibility to propose horizontal approach to e-Accessibility legislation in the information society suggests that such an approach would have the highest

[228] Aho Group Report "Creating an Innovative Europe", http://ec.europa.eu/invest-in-research/pdf/download_en/aho_report.pdf

political and market impact. Compared to the use of common standards for e-Accessibility in public procurement and the strengthening of vertical legislation, a horizontal legislative approach can further reinforce impacts by covering a wider user base (not only users of ICT-based public services and public service employees but also those working in and using ICT-based commercial services and equipment). Whilst the use of public procurement practices or the reinforcement of existing vertical legislation would manifest itself only in a significant but yet limited portion of the market for ICT tools and services, a horizontal legislation on e-Accessibility would cover the whole spectrum of ICT equipment, software and services, and would embed accessibility from the design phase of products and services, thus reducing future adaptation costs.

Similarly, a horizontal approach will have to be based more on *functional requirements* for e-Accessibility thus reducing the fragmentation of approaches currently undertaken at national levels and the partial attempts of improving existing legislation. A horizontal coverage of e-Accessibility will deliver a better impact in terms of technologies and services concerned and the potentials they could deliver to users. The flexibility introduced by meeting functional requirements will also be a stimulus for industry to meet the desired objectives by introducing cost-effective innovation in the market.

A legislation having a horizontal coverage on e-Accessibility will result in future-proof *requirements* in commercial and public service applications, since it will provide the incentives to embed accessibility from the very design phase of ICT tools and services, thus stimulating innovation and new investments in the ICT industry and service providers.

In a common EU framework for e-Accessibility, the internal market for accessible ICT would expand and competition could be enhanced. Industry would have to bear some costs in adapting to common requirements for e-Accessibility, however, to a lesser extent than for sectorial and specific requirements. These costs are deemed to be outweighed by a larger market scale, by the rewards from product and service innovation and by substantial overall economic growth.

A horizontal e-Accessibility framework, by laying down the requirements for service accessibility for the benefit of an increasingly older society, will lead to reduction of costs in providing public services through on-line means especially in health and social care, thus guaranteeing the innovation of the sector and contributing to financial sustainability of e-accessibility solutions.

The accompanying measures such as standardisation, research, validation projects, promotion campaigns and benchmarking would aim to make practical implementation of the legislation possible and prepare for e-accessibility in future technologies, as well as reduce overall costs. As regards this last aspect, the development of software allowing for e-Accessibility from the design phase will imply reduction of costs in maintaining accessible websites (see also annex 5)[229]. Besides, adapting technologies to wider e-Accessibility frameworks will be an incentive for innovation and exploitation of accessible solutions.

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[229] See Nomensa report (http://www.nomensa.com/news/at-nomensa/2003/7/8-out-of-10-ftse-top-100-companies-fail-in-accessibility.html).

Option C therefore can be expected to increase effectiveness of e-accessibility measures, with a comprehensive and systematic approach to safeguard efficiency while keeping the cost of e-accessibility down.

Completeness and consistency. Having e-Accessibility provisions reinforced in current legislation, notably in e-Communications, is likely to increase the scale advantages, potentially leading to reduced cost and better leveraging of investments for innovation driven by e-Accessibility. Moreover, new services, ease of use and simplification of accessible technologies can also benefit mainstream users.

This option would also imply specific measures from the Member States to ensure that emergency services are accessible to disabled end-users, and that they can make use of special devices such as devices for hearing-impaired users, text relay services, or other specific equipment enabling them to make an emergency call to 112 number. Common standards and technical requirements for use also in public procurement will be set to cover existing technologies. However, they will have to possibly consider and anticipate new and emerging ICT tools and services with commercial applications for a wider spectrum of users.

A horizontal approach will constitute a coherent framework. It will provide for the necessary flexibility to adapt national legislation and to allow for the establishment of a common mechanism for voluntary or mandatory compliance, depending on the results of the impact assessment accompanying the future legislative proposal referring to this preferred option.

The approach will represent a "single reference point" for e-Accessibility and will encourage national legislation and industrial implementation to align more easily to common practices, thus reducing the risk of fragmentation of markets for accessible ICT tools and services and covering services both in the public and in the private sector.

There will be some costs to comply with the new regulatory system. But these costs are deemed to be limited by the fact that e-Accessibility requirements are already present in major economies and can be recouped upon market dynamics fostered by innovation and by a larger customer based addressing disabled and the increasing older population.

A horizontal framework will also be a positive stimulus to collaboration in exchange of good practices in standards and conformity assessment across Europe and globally and in defining requirements for a global reach.

A comprehensive approach will not only rely on regulatory approaches. These latter ones will have to be necessarily complemented by non-regulatory actions such as in the field of publicly funded research for e-Accessibility in FP7, large scale test projects in CIP and active *stakeholder engagement*. The role of stakeholders is fundamental to guarantee feedback to any legislative proposal, ensure implementation and technical conformity, and pursue the e-Accessibility agenda further, especially in anticipating e-Accessibility needs in future technologies. Efforts are already ongoing such as in establishing roadmaps for e-Accessibility as explored in option B. By complying with a much more certain regulatory framework, these efforts will be more effective, more likely leading to expected results.

The accompanying measures will put in place a systematic linkage between legislation and implementation helping to safeguard coherence and completeness.

Option C therefore provides for completeness and coherence by its very design of a common reference point.

Future proofness. For operators, the new requirements under this option would bring some additional costs, e.g. to adapt services to improve e-Accessibility. For manufactures of goods and service providers, this option should also provide incentives to invest in new markets, including the growing and promising market of goods and services for the elderly[230]. In addition, having clearly defined pan-European requirements will reduce the compliance cost for operators and terminal equipment manufacturers in the long term. A preliminary quantitative analysis is performed in annex 5.

A comprehensive legislative approach will contribute to pre-empt lack of e-Accessibility in future and convergent technologies thus avoiding risks of market fragmentation in current and future technologies and services not covered by current legislation. It will constitute an incentive for ICT industry and service designers to pursue innovation for accessibility from the design phase, thus reducing the costs of embedded e-accessibility and compete on the enhanced quality of products and services.

Option C is expected to embed in the legislative framework the mechanisms to safeguard e-accessibility as technologies evolve, and thereby guarantee future-proofness.

Other Impacts. Enhanced competition is expected for accessible products and services covering the areas where current legislation would be reinforced. The possible emergence of EU e-Accessibility standards which can also be used in public procurement for accessible ICT, can be a lever for innovation and for creating new markets. ICT tools and services in public administrations will become more accessible based on EU wide accessibility standards. But there will not be a universal application of e-accessibility

Some improvements will relate to specific technologies allowing for greater social participation and inclusion. However, given the fast pace of evolution in ICT, e-accessibility in new technologies risks being an "after-thought" if only sectorial approaches are pursued, some forms of discrimination would therefore remain.

A horizontal e-accessibility framework will materialise in ICT products and services realised for accessibility, hence integrating the needs of weaker users from the start. This will be the precondition for their participation in the labour market. Accessible technologies will drastically reduce discrimination in accessing services and job opportunities. It will make weaker users more autonomous and independent with greater benefits in terms of quality of life, social interaction and privacy through easier and direct access to services, governance, administration and redress procedures.

230 Staff working paper on ICT for Ageing Well in the Information Society, *op.cit.*

Table 25: Comparing the options

ECONOMIC IMPACTS	**Option A – Maintaining the *status quo* *(benchmark)***	**Option B - Enhancing Member States and stakeholder cooperation and reinforcing research and innovation activities**	**Option C - Enhance synergies through a common integrated strategy. Proposing to explore ways of reinforcing specific and horizontal regulatory approaches to e-Accessibility and accompanying non-regulatory measures**
Competitiveness, trade and investment flows	Third country (US and increasingly China) will dominate the market for accessible and user-friendly ICT	(+) shared user/producers visions on e-Accessibility might enhance ICT acceptance and uptake (large domestic market)	(+) The possible use of e-Accessibility standards in public procurement practices can stimulate innovation in ICT (+) Legislation having a horizontal coverage on e-Accessibility will result in future proof functional requirements in commercial and public service applications, thus stimulating: • Innovation in ICT industry • Innovation in service delivery • New investment in European ICT industry • Economies of scale for ICT industry, commercial and public stakeholders in the deployment of accessible technologies
Competition in the internal market	Competition is negatively affected by the current situation on accessible technologies and services, tailored to specific and often localised requirements with negative effects on: • Consumers (in terms of available accessible services) • Producers (in terms of incentives to innovate and exploit new market opportunities)	(-) competition will be difficult without a supportive level-playing-field (+) agreements in technical requirements for e-Accessibility might foster competition (-) however, the largest part of the market for accessibility will remain *niche*	(+) Enhanced competition for accessible products and services covering the areas where current legislation is reinforced (+) A harmonised framework for e-Accessibility will be an incentive for ICT industry and service designers to pursue innovation for accessibility from the design phase, thus reducing the costs of embedded e-Accessibility and compete on the enhanced quality of products and services (which will be more user friendly for the mainstream market) (+) due to a harmonised framework for e-Accessibility, the internal market for accessible ICT will expand and competition could be enhanced
Operating costs and conduct of business	Given the increasing proliferation of national law / requirements for accessibility, industry suffers increasing costs to comply with fragmented regulation	(+) Costs for business will be contained (-/+) Businesses will find limited incentives to innovate in very specific areas (-) High coordination costs	(=) Industry will have to bear some costs in adapting to specific e-Accessibility requirements. But estimates (in US and Europe) state that they are contained (=) Industry will have to bear some costs in adapting to functional requirements for e-Accessibility. However, to a lesser extent if horizontal legislation is introduced.

			These costs are deemed to be outweighed by a larger market scale and by the rewards from product and service innovation
Administrative costs on businesses	Large costs to comply with specific national market rules for accessibility	(+) reduced administrative burden in case of combined public procurement (-) Large costs would still remain for compliance to specific national market rules for accessibility	(+) increased certainty in application of e-Accessibility requirements (=) some costs in addressing conformity assessment procedures (+) if voluntary; (-) if mandatory (+) certainty of one-stop-shop logic for functional requirements and assessment procedures (+) reduction of costs in maintaining accessible website
Property rights	fragmented solutions leading to lack of sufficient exploitation	(+) many of the solutions will still remain fragmented (-) some proprietary knowledge will be disclosed to allow for industry cooperation	(=) trade off between developing proprietary solutions and complying with specific mandatory standards (+) adapting technologies to wider e-Accessibility frameworks will be an incentive for innovation and exploitation of accessible solutions
Innovation and research	research on e-Accessibility is seen as having a "niche" role and disconnected from mainstream markets. Hence its market application is weaker	(+) innovation and research will be moderately stimulated by EU funding in FP7 and CIP	(+) research and innovation will be stimulated by legal certainty and will be driven by functional requirements for e-Accessibility
Consumers and households	accessible services are fragmented and few providers offer them into the market costs for assistive technologies are high and there is no plug-and-play solution	(+) some accessible services and technologies will be provided based on industry-user agreements	(+) ICT tools and services in public administrations will also become more accessible based on EU wide accessibility standards (+) users and households will reap the full benefits from e-Accessibility, since its principles will be embedded widely in the conception, production and delivery of ICT services and tools
Specific regions or sectors	The ICT sectors (supply industry) are facing increasingly new costs for complying with different measures Service providers do not bear the costs of offering e-Accessible services	(- / =) costs related to market fragmentation will remain –unless major coordination efforts are undertaken	(+) The ICT sectors (supply industry) will enjoy improved regulatory certainty (+) Both service providers and ICT suppliers will enjoy increased regulatory certainty and one-stop-shop procedures (=) There will be some costs to comply with the new system. But these costs are deemed to be recouped upon market dynamics (fostered by innovation) and by a larger customer based (e.g. addressing disabled and the

			increasing older population)
Third countries and international relations	fragmented markets in the EU do not encourage global technological solutions for e-Accessibility	(+) some industry-user agreed technology or service can profit from replication outside the EU	(+) increased collaboration in exchange of good practices in standards and conformity assessment and in defining requirements for global reach
Public authorities	No co-ordination between Member States at EU level, leading to diverging e-Accessibility requirements and weaker implementation at national and local level Less clarity for public employees and administration in implementing e-Accessibility Fragmented guidance in implementing e-Accessibility Limited transposition of EU provisions for accessible e-services Limited application of e-Accessibility features in the work-place for public employees	(=) benefits will be limited insofar possible improvements on public service provision is concerned (e.g. web accessibility of public web sites) (-) high coordination costs	(+)improved transposition of reinforced EU legislation on e-Accessibility (-) Increased resources for monitoring of implementation (+) legal certainty in applying the EU e-Accessibility Framework (+) provision of easy to access public services (esp.. for health and ageing) (+) reduction of costs in maintaining accessible website (+) reduction of costs in providing public services through on-line means (esp. in health and social care)
The macroeconomic environment	the market for accessible ICT (also relying on the ageing customer base) will remain unexploited due to lack of accessible and affordable technologies, the disabled and elderly will be hindered to actively participate in society and economy, with higher costs for social support	(+) some positive macro-economic impact might be envisaged due to better integration of disabled in labour market and some new market opportunities for specific accessible ICT	(+) e-Accessibility has the potential to unchain dynamic effects for growth based on innovation, investment in research and new markets for accessible ICT (+) more disabled persons and older users will find easier to engage in the knowledge society through accessible technologies and this would translate into a reduction of costs in social security and assistance
Aggregate scores	**=**	**2**	**21**

SOCIAL	**Option A**	**Option**	**Option**

IMPACTS			
Employment and labour markets	disabled and "younger" elderly (50+) are currently missing the opportunities to participate in the labour market due to inaccessible ICT the untapped potential of markets for e-Accessibility is not materialising in additional employment	(+) some positive effect can be expected in the integration of specific categories of disabled where specific accessible ICT has been delivered	(=) some improvements will relate to specific technologies allowing for greater participation (+) an e-Accessibility framework will materialise in ICT products and services realised for accessibility, hence integrating the needs of weaker users from the start. This will be the precondition for their participation in the labour market
Standards and rights related to job quality **Social inclusion and protection of particular groups** **Equality of treatment and opportunities, non -discrimination**	non accessibility of ICT products and services translates into discrimination in the labour market	(+) limited progress on technology development is expected to create the condition for selective entry of disabled in the labour market (-)forms of discrimination due to inaccessible technologies will remain	(+) Punctual corrections in the legal framework might improve the accessibility to specific technologies, hence translates into partial inclusion (+) accessible technologies based on horizontal regulatory approaches will drastically reduce discrimination in accessing services and job opportunities
Private and family life, personal data	being ICT key to interact socially, non-accessibility translates into exclusion from social life non-accessibility of ICT also often translates into relying on the support from non-trusted intermediaries potentially breaching into personal data of weaker users	(+) small and selective improvements compared to Option A	(=) making some of the traditional technologies accessible translates into easier ways to be included for disabled and elderly. However, risk of exclusion from use of ever new generations of equipment is heightened by the lack of more systemic approaches (+) accessible and usable technologies will make weaker users more autonomous and independent with greater benefits in terms of quality of life, social interaction and privacy
Governance, participation, good administration, access to justice, media and ethics	necessary mediation of trusted and non-trusted intermediaries to obtain services and access the information society no possibility to pursue legal redress	(+) small and selective improvements compared to Option A	(+) partial improvement through specific technologies (-) but risk of limited future proof-ness (-) limited possibility to pursue legal redress procedures

	procedures		(+) easier and direct access to services, governance, administration and redress procedures
Public health and safety	no access to state of the art health and social services (e.g. independent living services)	(+) small and selective improvements compared to Option A	(+) possibility to access autonomously all the services of the information society
Access to and effects on social protection, health and educational systems	non-accessible ICT will be a barrier to access services and the labour market, hence it creates additional costs in terms of social, health and educational support	(+) small and selective improvements compared to Option A	(+) accessible ICT is the precondition for "all" to access social and health care as well as education and long-life learning increasingly provided through ICT
Aggregate scores	**=**	**5**	**6**

Environmental impacts of e-Accessibility are considered in § 4.3