

eLearning for eInclusion

The draft charter (sections to fill in and comment)

Manifesto

The new paradigm: social e-learning

There is more in e-inclusion than giving away computers and extending more cable. Digital divide is a multidimensional phenomenon which includes many different drawbacks. Several of them –and very important ones- are mental in essence, so education is one of our best strategies to fight these problems back.

E-learning can help arranging a virtuous circle. Use of digital technologies towards inclusion, reinforces the overall effect of the process, when these technologies are deployed effectively. When we use e-learning for e-inclusion, we are also showing our public that Internet is a suitable tool for them, something that it is worth learning also in a practical manner. We are not only telling that information technologies are important, but we are showing it too in a practical manner.

Digital inclusion does not mean merely to teach people how to surf the web or how to send e-mail. These are only the building blocks. We need to make a lot more than that to assure that excluded people can use Internet to expand their competences and capacities to empower themselves and achieve a better life. We have found several mental barriers for e-inclusion. Some of them, like lack of trust, or lack of motivation belong to the user side, but there are also barriers included in the production of the e-learning systems, like formal approaches, non adaptive technologies, lack of meaningful context and generalistic methodologies which do not pay proper attention to the social and cultural contexts.

A short description on the situation today

Data processing, multimedia and the internet (a set of protocols and applications) are techniques organised and used by human beings. They are deployed and used in a certain social context. The internet is, however, a particular technical object, as it concerns communication modes between people as well as information circulation, storage, sharing and access. Finally, the internet is a flexible technique which can be spread, learned, transformed and adapted in a relatively short time. Its evolution can thus turn quickly in unforeseen directions : as all techniques, socially included, it can contribute to smoothing disparities or to generate new inequalities. In that way, because it allows new communication and organisation modes, the internet is often presented as being able to reduce some disparities. Minority groups have already shown that they are able to use the internet to take their development in hand. It is then attractive to believe that the technique will reduce the disparities. But disparities observed in access and use are the continuation of pre-existing social disparities. Now, in an information based society, the internet's non-homogeneous distribution risks increasing economic and social disparities. In brief, the technique does not modify the situation by itself, but maybe used to modify the social conditions.

By taking into account these characteristics, we want to propose a guide to developing positive use of information and communication techniques, mastered by all social groups.

1. Let us begin by reviewing the disparities observed in access and use. Internet access and the rate of computer equipment increases with educational level, social and occupational status and level of income. Men are more connected than women, families with child(ren) more than isolated women and cities more than rural zones. Immigrants, ethnic groups and minority groups are less connected. The less advanced countries have also less access to internet (and more expensive access). We lack precise analyses of the links between these factors, their relative weight and cumulative effects.

In each of the categories, the elderly are the ones who use ICT the least (but they are also the poorest, the least educated and they mainly live in rural areas).

These differences in access and equipment lead to an analysis of use: we use the internet if we know that we can benefit from it in everyday life. It is the professional or school or university context which generates the first use. Thus those who are professionally excluded, because they are retired or for other reasons (handicap, unemployment, etc.) face more risk of being excluded from ICT.

If internet use is mainly connected to work, it is also integrated into the domestic sphere and daily life. Most widespread is the use of e-mail, at first for professional or practical purposes, but also for keeping in touch with family and friends. Use of discussion groups and forums, very important quantitatively and qualitatively in the beginning, has decreased a lot. The collective dimension of the internet which benefits individual relationships (the individual with his family, the individual and his social network, the individual and his professional network) thus tends to fade.

This goes with consumption rather than production behaviour. Internet users interact with their close relations; beyond that, they consume resources and services. Libertarian and equalitarian influences present in the creation of the internet fade for the benefit of a commercial structure. A real network in which each user is an information producer is being transformed into a network increasingly functioning in broadcasting mode, illustrated by the asymmetric consumption of internet by ADSL.

This individualistic evolution, reflecting the dominant social practices, maintains exclusion.

Those who have no access to the internet are those who have most difficulty in finding content adapted to their needs (and wants) because nobody produces it for them, and thus they have little reason to access it. For example, the content of web sites, such as the use of very small font sizes in graphic presentations, is rarely adapted to the elderly.

However, we can observe that, under the combined effects of public policies, technical evolutions and costs reduction, the differences between each of these elements of the digital divide (age, sex, origin, etc.) are reduced. In the United States for example, there are almost no more differences in access between men and women.

This progressive and speedy dissemination of ICT to all groups results in the excluded becoming more excluded, with the risk that they will remain permanently excluded.

Let us finally note that all the measures of the digital divide relate to equipment and access to the internet. They do not measure use nor quality of use. If access to infrastructure and tools (not necessarily at home) can be considered as a right of the citizen, it is necessary to go further. Because beyond this known and measured digital divide is a more important divide which lies in the quality of ICT use and the capacity to handle, select and produce information in order to learn permanently and play an active role in the information society. These capacities are indispensable factors in professional success and personal development.

2. Digital divide is not ineluctable.

The accompanying policies, through education and training, have to concentrate their efforts on the development of these capacities among all social groups; otherwise, only families from dominant classes will continue to pass on these capacities to their children.

To reach this objective, it is necessary to set up real training actions which exceed the discovery of specific tools' features. Learning to use a browser is one matter, but learning to find relevant information in limited time and being able to participate remotely in a collaborative project at distance are other matters entirely. Confusing these objectives, is like learning to use word processing software instead of learning to write.

This reduction in the use of tools is possibly linked to the fact that information and communications technologies are young, their use is not obvious, they are very rarely adapted to the user and traders always propose new versions. This is a de facto exclusion factor generated by the tool. The more we belong to a discriminated group (e.g. those with handicaps, cognitive problems or weak abstraction abilities), the less we have been exposed to these techniques; first level learning will take longer and we will have less time, energy and cognitive capacity to develop an intelligent and positive use of the tool.

To simplify, we can qualify the needed learning actions of eLearning in the sense where eLearning is the learning of skills and knowledge which allow to participate in the information society.

eLearning does not have to limit itself to online training organised by/for universities and big companies. It must not be only centred on managing learners and on increasing training organisations' customer bases. In this meaning, eLearning is the adaptation of educational classroom models for distance users and for large numbers. Adaptation of courses, creation of multimedia resources, implementation of tools to facilitate collaboration between learners and tutors mobilise all the efforts. Some companies try to improve this model by focusing on delivering the adapted training answer just in time. Content management in relation to competence management dominates then on the platform concept.

But most important in developing eLearning is making sure that all the social groups have access to techniques, to give everybody the means to use ICT in their personal and professional development, and to learn in the information society.

3. The objective of this guide is to highlight elements for reflection and action in setting up a socially inclusive eLearning environment.

Footnote 1. Voluntarist equipment policies raise the question of the limits between professional and private fields (we take back homework more easily). They can also be underpinned by a consumerist logic: we begin to buy a computer which is going to be used to make online shopping.

After a careful analysis of real e-learning practices towards e-inclusion, we have found the following six key areas which are good starting points for both implementation and further research. They are the following:

1. Social solutions to social problems

Social practices define how technology is finally used, and not the opposite. We should never forget that digital technologies are never neutral. If not used appropriately, they can expand the social divide, instead of diminishing it. If we want to have a really inclusive information society, we need to address the social problems that have turned people into digitally excluded, and not only consider the ones derived from lack of structure. When digital divide is considered, not everyone has been created equally. There is an important qualitative difference between someone which is already excluded and need to understand and use ICT and someone which only needs some formal knowledge to jump in. This is a general principle which we think should permeate any type of e-learning strategy directed to e-inclusion. Otherwise it may become a total failure.

2. Community and awareness

Learning communities are a hot subject nowadays. Nevertheless, they are mostly viewed as mere instrumental concepts towards improving learning. Again, this is useful, but it is not enough. ICT offers us with wonderful social software which can be used in original ways to help real communities to expand their political, social and cultural horizons. Isolated communities can use digital technologies to be better known and respected among our society. The dispersed ones can use several digital tools to stay in touch and continue developing their own lifestyles and culture. We should also keep in mind all the awareness power that lies in the Internet to describe and fight social exclusion. This strategy is key when we are considering rural isolated communities and migrants that are working far away from their homes, but they can become also a important measure to fight sexism in the computer world and help women to join and transform ICT.

3. Towards the transparent computer

Computers and software get more improvements and new features each year and therefore become more difficult to use. This may be fine for users that are familiar with ICT. However, it makes thing worse every year for the digitally excluded, specially when elder people or handicapped are considered. In fact we consider that this "new feature" strategy is deeply wrong from a social and educational point of view. We need to reverse it. We have to consider strategies and technologies to turn them more intuitive and easier to use. Our grail, as the title suggests, is a transparent computer. Something that it is so easy to use that you almost need no instruction. A camera or a car are fairly intuitive technologies. To take a picture, you just direct the camera to the place you want to photograph and click the button. If you want to turn right, you just move the wheel right. Why can't ICT be like that?

4. Problem solving methodology for e-learning

Because our target has specific needs, we need to avoid academicism, and to construct courses that are useful, practical, and motivational. This surely implies something that is usually neglected when thinking about e-learning

strategies: the specific social and cultural context. Lack of trust and of motivation are important barriers towards e-inclusion. We will never cross those gates if we just create the typical "how-to" courses. Besides, information society becomes more and more competitive. In a few years, just knowing how to use a word processor or an e-mail client won't make any difference in the job market. This is another reason to search for problem solving methodology. A general course on how to use several graphic edition software is of little use, but a problem solving course on how to make flyers for clubs is both a good motivator and even a job opportunity for an unemployed young in a challenging neighbourhood.

5. Internet for everybody

Software technologies are plastic enough to be adapted to any specific need an special collective may had. Unfortunately, very few companies, administrations or individuals use that characteristic. We need to raise awareness on that topic among software and hardware producers, web designers and educators. When accessing culture, physical barriers like distance or architecture are a challenge to people with mobility problems. Books are of no use to people with visual difficulties. It is a shame that most digital cultural products, which can avoid these barriers easily, are not really adapted to these people's needs.

6. Digital empowerment

These two words, in a nutshell, describe our main intention while writing this charter. When one thinks about ICT from a social point of view, one can see how they have a plastic nature which help to avoid all traditional barriers to access to education and culture. This not only includes accessibility barriers, as stated in point 5, but also motivational barriers described in point 4. Unfortunately, the industry drive tend to the "new feature" paradigm, which makes ICT more difficult to use to the digitally excluded, therefore our appeal to change that drive in point 3. The final result will be a equalitarian information society with communities with cultural, social and political dimensions, as stated in point 2. If we want an information society which is really inclusive, digital technologies should be presented with values embedded in them, as social instruments able to improve democratic participation and improvers of people's lives.

B. Social e-learning manual

A compilation of the main ideas behind the best practices we have been collecting, ordered following the main subjects collected. That is:

Social solutions to social problems

Introduction

It has become evident that some groups, already marginalized in society generally, are also left behind by the evolving Information Society (IS). While such groups have much to gain from Information and Communication

Technologies (ICT) and the emerging Information Society, significant barriers exist to the realization of this potential.

Who is excluded: We use the term "Information Society" to denote the changed society being formed as a result of the fusion of information, media and telecommunications including far reaching and institutional changes in all aspects of human activity (e.g. workplace, leisure, shopping, commerce, education).

The common groups excluded from the information society are

- Unemployed people, particularly those experiencing long term unemployment
- People in relying on social welfare benefits or public services or residents on local authority housing
- Farmers or residents of remote rural areas
- People with few or no educational qualifications or with literacy difficulties
- Older people
- Migrants and ethnic minorities, refugees and asylum seekers
- People with disabilities

The common threat among these groups is that they usually already experience some form of social exclusion. It is also becoming clear that the small community and voluntary associations addressing these social exclusions are also in danger of exclusion from the information society for various reasons including low and uncertain funding, lack of awareness of the opportunities offered by these technologies and lack of technical expertise.

Benefits and Barriers of ICT

- Excluded individuals can use ICTs to communicate with friends, relatives and others with shared interests
- Excluded groups and individuals can use ICTs to organize themselves more effectively
- ICTs permit excluded groups to provide content about themselves to counter absent or negative commentary in other media and to organize more effective lobbying and advocacy campaigns
- ICTs can be a tool to enhance active citizenship, pluralism and social rights by accessing government electronic information in these areas
- ICTs can be used by excluded groups to develop and support partnerships and social capital and nurture communities by supporting local networks
- ICTs can be used to access and enhance employment opportunities
- ICTs can be a means of accessing life-long learning – identifying and participating in distance learning courses

Policy Initiatives and recommendations

- Raising of Awareness
- Structures: A strong national policy direction, supported by a nationwide administrative structure and coupled with supported local action would be essential to achieve equal access to the Information Society for the citizens

- Legislation and Regulation: Suggestion of incorporating accessibility requirements into ICT – Incorporation also of legal requirements in disability related or human rights legislation
- Research: Continuous stressing, monitoring and evaluation activities targeting the research activities towards social inclusion
- Supporting Measures: That includes the involvement of the excluded groups into the whole decision making process

Community and awareness

Nowadays the Internet is the fastest growing warehouse of data and while many of us logon, large amount of population remains disconnected. Many people don't have access to technology for different reasons. It is extremely important to understand the different groups online and whether these needs differ by the race, ethnicity or gender.

People with low incomes and the less educated are among the groups often lacking access to the information technology. What is more, women not always have the same opportunities and encouragement to develop their computer skills as men.

Today we are experiencing a gap between those with computer skills and access to information resources via Internet than those without such skills and computers access. Although the technology is faster, cheaper and more available than ever before, more than ever we need to promote the awareness and understanding of IT and its applications through active promotion of IT knowledge and to enhance the use of information technology in the community. People who lack access to PCs and the Internet, however, are placed at an increasing disadvantage. Technological equity and information access it should be a MUST for building a digitally inclusive society.

It becomes more and more important to ensure community access because for many individuals in our society, particularly women, migrants and rural communities, it'll be very important to enhance local access points with computers with Internet connection through community centres, hospitals, public libraries and schools; facilities free of charge, equipped with adapted PCs for people with disabilities and the visually impaired, and using open source software to promote wider use of Information Technology in the community. Lastly we believe that we all should strengthen our community's ability to exploit the digital world, using the online community where people from around the globe, from lots of different backgrounds, race, age and gender, could come together and communicate with each other. To raise IT awareness and promoting the use of IT in the community, we have reviewed the best practices of different countries all around the world and so far we have identified the following solutions:

- Increase IT access for people from disadvantaged groups by the promotion of free computer facilities for public use : people who cannot afford computers, people with disabilities, senior citizens and new arrivals can obtain free access to computers, the Internet, e-mail services and tailor made trainings.
- To adopt web accessibility guidelines in providing barrier-free web sites

- Vocational education/training and employee retraining for regaining women who stopped working after having a child.
- Training citizens to use teleservices for improving their quality of life
- To encourage girls to study technical careers for combating the gender gap in the IT sector
- Creating community based organizations such as Boys and Girls clubs for promoting technology education by providing free access and after school programs
- To create cyber points for increasing the digital inclusion in rural areas
- Promoting the e-administration for combating the isolation of the rural communities
- Promoting the e-learning and the e-centers for enhance the technological services in the rural areas
- Providing multicultural interfaces, taking under consideration the cultural differences
- Motivating girls presenting them technology as "fun" since using technology can be an exiting experience
- Supporting the use of IT among women at grass-roots level meaning culture, background and social status
- Culturally adapted websites for teaching country language to immigrants and the new comers

Problem solving methodology for e-learning

While a huge number of citizens around the world is having access to information resources and getting online, there are still large segments of our society that are being passed by in the Information Age. The next phase of the digital revolution depends as much on education as on technology. Even though majority of people think that computers are a powerful tool, nowadays is not enough to know word-processing or working with spreadsheets. Computers are only useful if you have got some education to make use of the tool. With the information technologies and the digital revolution, many aspects of our lives have changed rapidly. It is vital we all assimilate this changes, but most of all it is essential that, for example, young people are prepared for the Information Age. However the real factor is Education: the knowledge of the new technologies increases the value of education. If you are well educated and with high income, you have much more opportunity in your life. And if you're poorly educated and, additionally, you have low income, computers decrease your ability and possibilities. So, the key is to have information literacy and the ability to access, interpret, and respond to information. For enhancing the digital

inclusion, we need to focus on training issues: is not enough just to supply IT courses and access to the latest technology, but we should also provide qualified teachers, adequate software and hardware, and appropriate content, to meet the needs of the different target groups. We must promote useful, practical and motivational IT tailor made courses to encourage the youngest, unemployed and other people socially excluded, to build their information literacy.

To help bridge the social gaps, we should provide youth and unemployed people, for example, with equitable and meaningful access to technology. Additionally, should be taken under consideration a nurturing and supportive environment that enables each one to pursue his/her purpose through a conscious process of self-discovery, experiential learning and self-determination. We consider the following notions some of the best practices for using technology effectively and as solutions to real problems:

- To provide refresher and catch up courses to long term unemployed to decrease the lack of information from the users view
- Adapting the content of the courses to real market need and solving real life problems
- Offering flexible training courses with real effect on exclusion for handicapped and socially excluded people
- Peer to peer teaching, promoting the youngest and students to become future trainers
- Combining computer lessons with learning other skills, for example: to learn how to drive a car or how to play an instrument using the new technologies
- Emphasizing to the students that computers are a tool to help them with their goals and needs: generate and stimulate their interest in new technologies and the importance of being technically skilled
- To help young people understand that technology is becoming an essential part of their lives: stimulating them and increasing their interest in technical careers at schools

Digital empowerment

The society is in the midst of a profound technology-based communications revolution. This so-called "digital revolution" is transforming the economic, social, political and cultural life. Technological advances, particularly the Internet, not only are reshaping how people learn, work, shop, correspond, and recreate, they are fundamentally reshaping the way individuals and institutions relate.

For those with access to technology and to the skills to use them, the digital age will bring unprecedented opportunity. Unfortunately, not everyone has such access and there is evidence that technological advances may be aggravating existing patterns of inequality between those with access to Information Age tools and the skills to use them and those without. This situation is commonly referred to as the "digital divide".

The term 'digital divide' describes the fact that the world can be divided into people who do and people who don't have access to - and the capability to use - modern information technology, such as the telephone, television, or the Internet. The digital divide exists between those in cities and those in rural areas. For example, a 1999 study showed that 86% of Internet

delivery was to the 20 largest cities. The digital divide also exists between the educated and the uneducated, between economic classes, and, globally, between the more and less industrially developed nations.

The concept of "digital Divide" denotes that there is a disparity in terms of access to the super information highway and subsequent use of ICT's. The divide may be explained in different ways but the core issue is that it reflects skewed distribution of resources. It affects people according to their gender, social class etc. It also reflects the skewed ness of resource allocation between nations, individuals and communities. Simply put its about who possess the capacity and the means to acquire the software and the hardware, who has the necessary infrastructure and other necessary elements to employ Information and communication technologies to the full advantage.

The "digital empowerment" will be the medium to bridge the "digital divide". Although empowerment means many different things to different people, it should outline a plan to enable every single person to cross the digital divide by making sure that all people regardless of their race and Ethnicity, economic and social status, religious, mental and physical conditions, Location, Education Level have access to a computer and technology education. It should serve as a practical tool.

At this point, the challenge of finding practical solutions for narrowing the digital divide is occurring. The following practices could be considered as steps and actions, which could be integrated into a wider framework of promoting empowerment policies. The main stakeholders of these actions could be NGOs, local agencies, governmental organizations, professionals, academics, experts, individuals etc. The following recommendations and suggestions have been concluded through the examination of more than 100 best practices, which the project consortium gathered.

1. Create special software for disabled persons

The project "*Network for blind people*" created an accessible website from blind people where the computer reproduced in voice the commands that appear on the display and the digital data or already reads the written witnesses to the blind people. (more info on <http://www.comune.roma.it/cultura/biblioteche/blindnet/presentazione.htm>, www.bibliotechediroma.it, www.uiciechi.it). In addition to this, the "*Tactile Interactive Multimedia Computer Games for Visually Impaired Children (TIM)*" project provided young visually impaired children, with or without additional disabilities, with multimedia computer games they can access independently, that is without the assistance of a sighted person. [TiM?](http://www.inova.snv.jussieu.fr/tim/tim.php?ref=ist-info) developed tools that allowed the adaptation of existing commercial computer games ensuring that educational and play contents were incorporated. The specific contents developed met the particular needs of a young blind or partially sighted child (for more info:<http://inova.snv.jussieu.fr/tim/tim.php?ref=ist-info>)

2. Create on-line training courses addressed directly to the disadvantaged groups

The initiative "*Putting Women on the Net*" (www.frauen-ans-netz.de) enabled women to use the Internet, by de-mystifying it and encouraging women to overcome their initial inhibitions. Women gained academic and professional qualifications in technology, engineering, and information and communications technology. Since autumn 1999, more than 40,000 women have taken part in courses organized by the "Putting Women on the Net"

project and the official website www.frauen-ans-netz.de website has had nearly 5 million visits

3. Encourage the involvement of public and private education institutions to e-learning initiatives for the disadvantaged people

Under the "*Improving Provision for Disabled Students, (DEMOS)*" project, the University of Salford, University of Manchester, the Manchester Metropolitan University and UMIST involved their academic staff and examined the issues faced by disabled students in higher education. They created an Online learning package including examples of good practice in supporting disabled students, practical information regarding inclusive practice in the learning environment, sources of help, policy etc within the 4 Manchester HEIs, other sources of help/materials for further development, and the experiences of disabled students. More info at

<http://jarmin.com/demos>

4. Build partnerships between Universities and Private companies to create special training software packages for disabled people

In the frames of project "*SMILE (Multimedia Language courses for deaf people)*" 3 universities and 5 private companies from Sweden, Austria, Spain and Netherlands developed a Prototype language course application on CD-ROM. Along with the prototype versions, a general platform has been developed in order to allow easy and straightforward implementations of different European languages

(<http://www.arcsmed.at/arcsmed/projects/smile>).

5. Develop integrated further services that are targeted more directly at those less fortunate in the information society

The non-profit making organization Computers for Youth (CFY) launched the project "*Take IT Home NY -- CFY's Signature Program*" aiming to offer families one integrated package. The main objective was to improve the educational, social and economic prospects for low-income students and their families by providing them with home computers and the skills to use them. The organization provided families and teachers with home computers, provided disadvantaged youth with hands-on learning experiences in three areas that were core to CFY's mission: refurbishing computers, providing technical support, and developing web content. The CFY identified low-income public middle schools and then blankets the entire school community with technology. Every student, parent and teacher received a home computer, training, technical support, tailored web content and email accounts on a community-wide system

<http://www.cfy.org/index.html>

6. Emphasize not only to access but to outputs as well

For example, the "*Handicapped Network online portal helps to get started*" project offers online training courses with certified vocational qualifications. Vocational Training Centres offered e-learning packages under the Handicapped Network help aiming to overcome the lacking mobility of the target group: the participants in the courses learnt and worked from their computers at home. One of the project results was to encourage companies to employ disabled people (<http://www.ets-online.de>)

In addition to this program, another initiative was launched called "*SDV-NetJob: Integrating Disabled People into the Workforce*"

(<http://www.socialdialogue.net>) The Information Technology (IT) industry suffered from labour shortages, while disabled people needed to integrate into the workforce. For some reason the two parties didn't combine their

forces and create a win-win situation. The results revealed that physically disabled individuals with computer skills were subsequently armed to compete on a level playing field with others in the job arena: 90% of project's participants obtained employment. 85% of Net Job trainees are employed in private companies or as public servants on ordinary conditions. The jobs they achieved vary from Software Developer, Desktop Publisher to information officer. The common denominator is the use of IT tools in the daily work

7. Create multi-dimensional, multi-level networks for integrating people into ICT

The initiative "Access to Higher Education through online learning for students with disabilities" involved various organizations at different times such as schools, local organisations and hospitals, Teeside Tec, Cleveland Educational Computing Centre, IT Internet Group of NASEN (National Association of Special Education Needs) and the NAS (National Autistic Society). The main objective of the project was to explore future technologies, to raise awareness of the application of current technologies to the problems faced by people with cognitive disabilities, learning difficulties and autism [http://www.fastuk.org /project_details.php3?Ref=88](http://www.fastuk.org/project_details.php3?Ref=88)

8. Include older people to the new technologies

The project *PROMISE* (<http://www.stakes.fi/promise>) was undertaken in order to encourage the inclusion of older people and disabled people in the emerging Information Society in Europe by means of exchanging experience and examples of good practice in this area. The participants were able to have access to goods and services that can be provided by on-line information services, teleshopping, telebanking, pay-TV and on-line entertainment, and other such developments. Another aspect concerns new possibilities to deliver care and support from a distance, such as alarm and other security services, social services (telecare) and health services (telemedicine).

The above mentioned suggestions and recommendations could be considered as a guideline for those individuals and private or public institutions willing to offer their services and products to the further integration of the less advantaged social groups into the new ICT society.