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### Digital Europe – Chance for Job in Hungary

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#### Abstract

The 35 percents of EU total population use the advanced Internet services. This rate is very low and has to increase in the next years, because the employed person needs ICT user's skills. At the first level the digital literacy and at the second level the higher knowledge of ICT acquiring is very important, because nowadays, without these abilities it is not so easy to get qualified jobs in Hungary. In the information society it is very important to measure the digital literacy. For this measuring we have to ask the users to evaluate their own knowledge. In the World Internet Project evaluation we did not find a significant disparity between the evaluation of average Internet knowledge usage and that of the computer usage. In both cases, most people thought that their knowledge was good. Approximately every tenth person surveyed characterized his or her knowledge as outstanding and in a similar proportion the users thought their knowledge is weak. Taking part in organized courses and training can help to increase the digital literacy and ICT users' skills. This taking part is decreasing parallel with increasing of age. That is why we need to take into account how we can connect these "older" people to the lifelong learning programmes, where we use the e-Learning tools. Nowadays, the importance of e-Learning is growing rapidly, partly due to the information and communication technologies in the information/knowledge-based society is developing. The goal is to enable the knowledge and skills to help the individual to become an active member of society, teamwork, motivation, and to possess the skills necessary for finding a place in the labour market.

#### Key words

Digital Europe, digital literacy, e-Learning, Lifelong learning, Knowledge patent, education.

#### Anotace

35 procent z celkové populace EU využívá vyspělé internetové služby. Tento podíl je velice nízký a v příštích letech se musí zvýšit, protože zaměstnaná osoba potřebuje znalosti uživatele ICT. Je velice důležité, aby byla na první úrovni vyžadována digitální gramotnost, na druhé pak vyšší znalost ICT, protože dnes bez těchto dovedností není v Maďarsku lehké získat kvalifikované pracovní místo. V informační společnosti je velmi důležité měřit digitální gramotnost. Pro toto měření se musíme žádat uživatele, aby zhodnotil své vlastní znalosti. Ve hodnocení Světového internetového projektu jsme nenalezli významnou disparitu mezi hodnocením průměrných uživatelských znalostí internetu a uživatelských znalostí osobního počítače. V obou případech si většina lidí myslí, že jejich znalosti jsou dobré. Přibližně každý desátý dotazovaný charakterizoval své znalosti jako vynikající a podobný podíl uživatelů považovalo své znalosti za slabé. Účast v organizovaných kurzech a školení může pomoci zvýšit digitální gramotnost a uživatelské znalosti ICT. Tato účast má snižující analogii se zvyšujícím se věkem. Proto musíme brát v úvahu to, jak můžeme zapojit tyto „starší“ lidi do celoživotních výukových programů, kde využíváme e-learningové nástroje. Důležitost e-learningu v současné době rapidně stoupá, částečně díky informačním a komunikačním technologiím v informačně/znalostně-založené společnosti. Cílem je využít znalosti a dovednosti k pomoci jednotlivcům, aby se mohli stát aktivními členy společnosti, týmové práce, aby získali motivaci a znalosti nezbytné k nalezení místa na pracovním trhu.

#### Klíčová slova

Digitální Evropa, digitální gramotnost, e-learning, celoživotní vzdělávání, znalostní patent, vzdělávání.

## Introduction

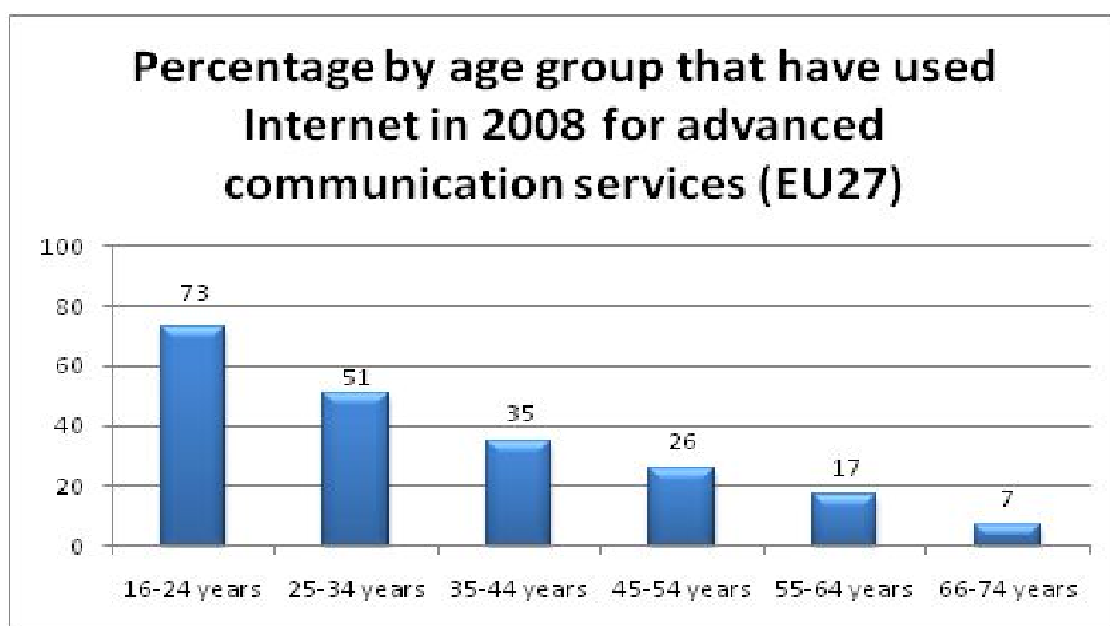
Europe promises to become even more digital in the years to come. Only 35 percents of the total population in the EU have used advanced Internet services in 2008. It is markedly different for people between 16 and 24: 73% of them have recently used Internet for advanced data transmission. With these young, regular and intensive Internet users, there is a whole generation of „digital natives” ready to apply innovations like web 2.0 to business and public life. It is in this new generation that there is a real growth potential for Europe. These digital natives will be turning into consumers with an important purchasing power. This is the reason why the EU believes that rolling out and development of high speed broadband internet - via fixed or wireless connections - could create around one million jobs in Europe, and spur broadband-related growth in economic. Based on the World Bank data

each 10% of additional broadband penetration yields 1.3% extra growth (World Bank, 2007).

The Table 1. shows the EU-27 countries in the rank of persons, who are employed with the ICT users skills. Here can be seen that Hungary is the 7th in the rank, so it is clear why at the first level the digital literacy and at the second level the higher knowledge of ICT is so important. Nowadays, without these abilities it is not easy to get qualified jobs in Hungary.

## The Information Society

The information society (International Telecommunication Union, 2009) needs continuous knowledge and enhanced reproduction. The products of leading-edge technologies of the information society provide faster and more immediate information-production.



Source: Eurostat

Figure 1: Percentage by age group that have used Internet in 2008 for advanced communication services (EU-27).

Ranking	Country	%	Ranking	Country	%
1.	Luxembourg	29,1%	15.	Cyprus	18,9%
2.	United Kingdom	25,2%	16.	Belgium	18,8%
3.	Lithuania	23,4%	17.	Germany	18,3%
4.	Denmark	22,8%	18.	Czech Republic	18,3%
5.	Malta	22,4%	19.	France	17,8%
6.	Latvia	21,3%	20.	Austria	17,5%
<b>7.</b>	<b>Hungary</b>	<b>20,9%</b>	21.	Spain	16,0%
8.	Sweden	20,0%	22.	Slovakia	15,9%
9.	Finland	20,0%	23.	Poland	15,4%
10.	The Netherlands	20,0%	24.	Greece	12,9%

11.	Slovenia	19,6%	25.	Bulgaria	12,1%
12.	Italy	19,4%	26.	Portugal	11,8%
13.	Ireland	19,2%	27.	Romania	9,8%
14.	Estonia	18,9%			

Source: Eurostat

Table 1: Percentage of persons employed with ICT user's skills (EU-27) (2008).

The knowledge-based society is a learning-based society. Beside the rapid, steadily growing knowledge the individual skills and knowledge continuously become out-of-date. Anyone who wants to hand on the information society labour market has to study in all his or her life. The typical studying with parallel working is the distance learning, medium of which is increasingly the Internet. The Internet is gradually the all-embracing communication medium of the economy, politics, science and culture in the information society. The Internet contains many tens of millions of pages of written documents, which can be very diverse, but it is a valuable repository of information and knowledge.

The information society is not only creating new opportunities but may intensify the existing inequalities or may even create the new inequalities. Of course, one of the key aims of the EU strategy was that the ICT tools (Internet5) should contribute to reduce the existing inequalities, and to reduce the digital divide deepening. The most important objective is to work on reinforcing the digital literacy and to promote obtaining it because it can bring the effective usage of computers to the daily work. This ability to create, structure and subsidy expansion of digital literacy is necessary.

In most cases, in the context of the information society, almost the only means of information technology - the devices are discussed. These would be the dysfunctional assets in themselves if there were not people who use these tools for a given purpose. They can also be used for the digital literacy.

In the information society, the teaching and learning are partly transformed. The e-Learning has number of tools, which were developed for this service. The existing on-line learning materials compared to a deeper knowledge providing more detailed support for interactivity are insufficient. It is necessary to develop new curricula, which would be part of the Community work, and free software

based on new technological opportunities (WIKI - Web 2.0 technology) can be created.

Due to the development of new technology, the teacher-student interactivity is changing. Using the Internet expands the range of options for access to information. As a result of this the teacher's role gets significantly transformed as his or her task is not just to be the source of knowledge but also to be the leader of learning, motivation and also to be assisting. The solution of the new situation will be helped if all aspects of mobile, various teaching methods (cooperative work, collaborative work, problem-based teaching) provide the enabling environment for students.

### Digital Literacy

Digital literacy (Internet4; Jones-Kavalier and Flannigan, 2006) means both the necessary knowledge of how to use the computer and the Internet, as well as the ability to receive, organize, and critically evaluate the information. Regarding the digital literacy levels, much can be told by what proportion the certain social groups use these various tools. The really questions are, how digital literacy levels are formed among these users and which skills are necessary for the effective use of computer and Internet. There are several ways to measure the digital literacy. We try to analyse it from three different angles of the user knowledge. Firstly, we evaluate the knowledge of computer and Internet usage on the basis of a "self-classifying" examination, according to which we can understand how confidently the surveyed utilize these tools based on their own opinion. This subjective classification can be supplemented by an examination in which the groups of the surveyed took part in formal education (computer technology courses and trainings). On the basis of questions concerning various computer functions, we can try to give conclusions about the digital literacy level, as we can see the exact level of complexity of the tasks that various user groups are capable of carrying out.

The most obvious way to measure the digital literacy is to ask the users to evaluate their own knowledge. In the World Internet Project evaluation (Internet1) - which made it in every two years - there was not found a significant disparity between the evaluation of average internet knowledge usage and that of computer usage. In both cases, most people thought that their knowledge was good. Approximately every tenth person surveyed characterized his or her knowledge as outstanding and in a similar proportion the users thought their knowledge was weak.

We have to take into account the more important social and demographic indexes to this distribution. In this case we can observe the greatest deviations with the changing of age. With an increase in age (mostly in the case of those above the age of 30) the proportion of users who judge their own knowledge as either good or outstanding steadily decreases. This correlation is true both in the cases of computer and Internet usage.

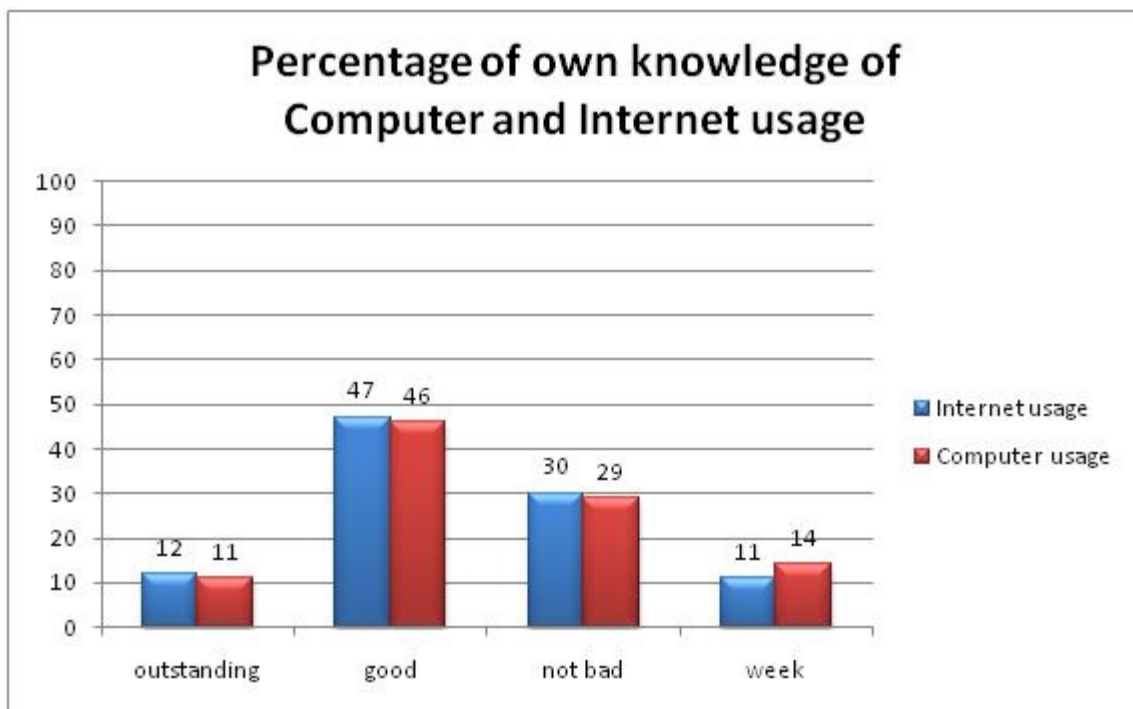
It seems that 57% of the computer users can be termed as confident, while 59% of the group of Internet users stated that their knowledge of Internet usage was either good or outstanding. It is obvious that while the use of digital technology does not

cause difficulties for more than two-thirds of the users below the age of 30, merely 43-55% of the users above the age of 30 can be termed as confident in this regard. This data reinforces the observation that new informational and communicational tools are natural for the generation that grew up with digital tools, while the use of the computer and the internet give rise to significant challenges for the older generation.

Generally, a person is digital scripturist who recognizes when he needs information. In practice, 5 levels of digital literacy are distinguished:

1. The information literacy - the user is able to recognize the nature and extent of information, which is needed.
2. Efficiently and effectively reaching the desired information.
3. Source criticism (to process the information and integrate the knowledge).
4. Effectively usage of the information to reach the goal.

Understanding the value of the information, understanding the economic, legal, and



Source: World Internet Project - 2007

Figure 2: Percentage of own knowledge of Computer and Internet usage.

5. ethical context, using the information adequately.

The European e-Skills Week (it is a Hungarian initiation) - which is organised in Hungary in 2010 - will highlight the growing demand for skilled ICT users and professionals to drive a competitive and innovative Europe. This campaign seeks to inform students, young professionals and SMEs about the vast range of opportunities that ICT-related jobs present. The event is expected to involve 300,000 participants in more than 100 activities. Public authorities, ICT companies, education institutions, and students will engage in hundreds of activities, training events, competitions and much more. The events will take place across Europe with more than 20 participating countries.

Hungary intends to reach 1 million people in the Microsoft Digital Literacy Programme (Internet2), whose objectives can be summarized in the following 5 points:

1. The distribution of digital literacy and training opportunities for community technology centres (ECDL centres, libraries, telecentres, etc.).
2. High-quality, industry-controlled curricula and qualifications insure.
3. Awareness of the importance of digital literacy, particularly in the unemployed and older workers, to increase the labour market opportunities.
4. The widest possible dissemination of digital literacy and business communities in order to develop local economics and trade.
5. The small and medium-sized staff 21st century skills of awareness, which will help to increase the competitiveness of firms.

The programme takes 3 years and 350 thousand people, over 5 years 1 million people will want to train digital literacy, including helping disadvantaged young people, people over 45 years of age, and location of the labour market. Presumably, the national ECDL exam centre will provide its network of more than 500 sites, which

target 1 million students. Microsoft "digital literacy" programme that can be acquired on the basis of knowledge acquisition can be an important step in the digital illiteracy eradication, however, the program is much more complex - understanding the ECDL certificate as containing the desire to obtain it; it gives the basic knowledge and is appropriate for participants.

The Lisbon Strategy set out principles "slightly" modified in Hungary, about 3 million people to be trained in digital literacy. It is expected to play a major role in the ECDL centres, and the government to create motivation by subsidies.

### **Courses and training**

Taking part in organized courses and training can be helpful to increase the digital literacy and ICT users' skills (Havlicek and Vanek, 2005). This taking part is decreasing parallel with increasing of age (Figure 3.). The confidence of the youth is obviously partially due to the fact that the instruction of informatics and computer technology in elementary and secondary schools is natural today. It is not surprise that 90% of those belonging to the 14–17 years age group declared that they had taken part in such instructions. At the same time, among the entire population, the value of this index is barely above 34% and with an increase in age, the proportion of people with such experience decreases.

In spite of the fact that several training programs have been launched which target the "grandparent" generation, merely six percent of those belonging to the 60 and above age group have ever taken part in such training programmes today. Besides the oldest age group, the proportion of those between the ages of 40 and 60 who have participated in such a training program (20–27%) could be a warning sign, since it is this age group who is most in need of computer technology instruction - as it is among them that the proportion of those possessing digital literacy is the lowest.



Source: World Internet Project-2007

Figure 3: Percentage of people who have taken part in any computer technology training programme or courses (World Internet Project-2007).

### e-Learning in education

Nowadays, the importance of e-Learning is growing rapidly, partly due to the information and communication technologies in the information/knowledge-based society is developing. The e-Learning to the linked concepts of "knowledge society", "lifelong learning" and "training modularisation" as they are implementing the e-Learning has a crucial role to play.

The whole lifelong learning with continuous access to the learning of the knowledge society, sustainable knowledge and skills is necessary for participation in the knowledge acquisition and its continuous updating. In lifelong learning from birth to the old age up becomes a standard process, which is including all forms of learning.

The goal is to enable the knowledge and skills to help the individual to become an active member of society, teamwork, and motivation and to possess the skills necessary for finding a place in the labour market. The lifelong learning is the modulation of the training to drive interoperability and transparency as a strong supporter of the economic (large number) e-Learning courses realization.

The information communication technologies in lifelong learning, knowledge patent modularisation

relationship (Internet3) and the special role of the e-Learning is shown in the Figure 4.

The e-Learning systems and the functional point of view, the actors include the following components:

- Text, multimedia, and other curriculum elements,
- Curriculum development System (LCMS, Learning Content Management System),
- Electronic curricula and component database,
- E-learning Educational Framework (LMS, Learning Management System),
- Content developer, student, teacher/tutor.

In the last decade, we can find more and more examples of using the e-Learning (Cebeci and Erdogan, 2005) in agricultural and rural development sectors (Nikos et al., 2010). Please to see the following samples.

- Rural-eGov IEEE LOM AP (ReGov LOM) - Support the training of rural and agricultural small and medium enterprises (SMEs).
- FAO Agricultural Learning Resources AP (FAO Ag-LR) - Provide structured access to information on FAO's capacity and institution building services and learning resources.



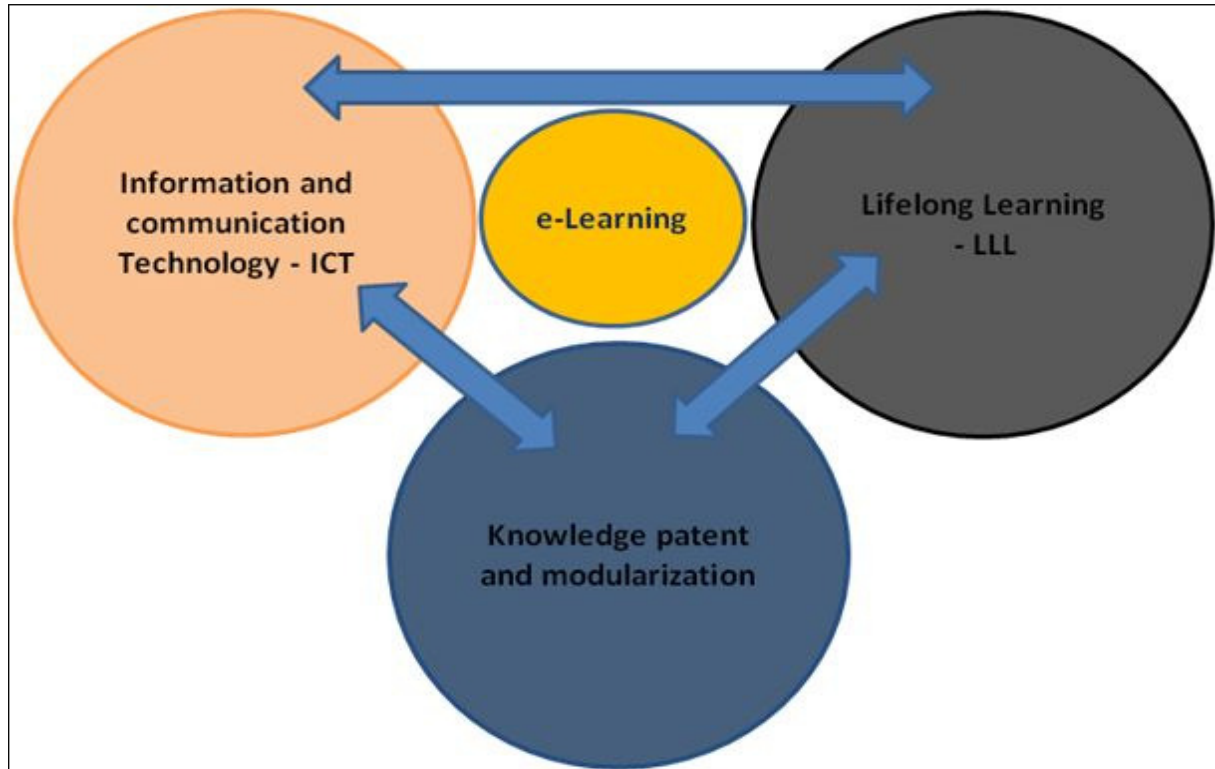


Figure 4.: The e-Learning central role in the LLL, ICT and knowledge-patents modularization relationship.

1. CGIAR LOM Core AP (CG LOM Core) - Supporting 15 international agricultural research centers in developing countries.
2. BIOAGRO LOM AP - Facilitate the annotation/description of learning resources that are collected and described in the Bio@gro Web Portal.
3. Biosci Education Network (BEN) AP - Developing and maintaining digital library collections of biological sciences teaching and learning resources.
4. Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program (SANREM CRSP) AP - Support sustainable agriculture and natural resource management decision makers in developing countries.
5. TrAgLor LOM AP (Cebeci et al., 2008) - Aims to promote an infrastructure for learning objects in agriculture, food, environment, forestry and veterinary sciences.
6. Intute: Health and Life Sciences AP (Intute AP) - Provides the online access to a large database of resources that cover four main subjects: Science and Technology, Arts and Humanities, Social Sciences, and Health and Life Sciences.
7. EcoLearnIT LOM AP - Digital repository of reusable learning objects that manages and hosts various resources focused on soil, water and environmental sciences, and provides authoring tools to develop learning objects.

### Conclusion

The digital literacy is the base of knowledge-based society and economy. The EU pays a particularly great attention to the physically isolated, socially detached, socially disadvantaged people, migrants, and over 50 years of training those people. Vulnerability of these groups is likely to increase if they cannot study the basic information and communication tools.

The Web allows the development and spreading of the growing importance of collaborative work. Participation in a project is no longer subject to any time or location, and a significant part of project takes place in the virtual space. This increases the freedom of workers and job opportunities.

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