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# THE DEVELOPMENT OF ESERVICES IN AN ENLARGED EU: THE CASE OF ELEARNING

*Kirsti Ala-Mutka, European Commission, JRC, Institute for Prospective Technological Studies (IPTS)<sup>1</sup>  
Pal Gaspar and Renata Jakša, ICEG European Center*

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## Introduction

At the European Council in Lisbon in March 2000, the EU-15 Heads of Government set the goal for Europe to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. The renewed Lisbon goals of 2005 emphasize working for growth and jobs, and include plans to facilitate innovation through the uptake of Information and Communication Technologies (ICT) and higher investment in human capital.<sup>2</sup> ICT and related policies play a key role in achieving the goals of the Lisbon strategy. In 2005, the strategic framework for Information Society policy - i2010<sup>3</sup> - identified three policy priorities: the completion of a single European information space; strengthening innovation and investment in ICT research; and achieving an inclusive European Information Society.

As ICT can enable inclusion, better public services and quality of life, all citizens need to be equipped with the skills to benefit from and participate in the Information Society. Education and training systems play an important role in reaching these goals. Using the facilities that ICT can offer to enable lifelong learning<sup>4</sup> for citizens is an important way of fostering competitiveness and employability, social inclusion, active citizenship and personal development. Policy actions such as the Education and Training 2010 Work Programme<sup>5</sup> and the Lifelong Learning Programme (LLP)<sup>6</sup> aim to develop learning in the knowledge society. One of the focus areas of the LLP is developing innovative ICT-based content, services, pedagogies and practice for lifelong learning.

IPTS has been researching IS developments in acceding countries<sup>7</sup> since 2002.<sup>8</sup> The outcomes of this prospective research, which aimed to identify the factors influencing Information Society developments in these countries and the impacts these developments have on society and economy, point to the need for a better understanding of the specific contexts in each member state for the take-up of e-applications, in particular in the areas of eGovernment, eHealth, and eLearning. These key application areas have an impact not only on the relevant economic and public service areas but also on the development of the knowledge society as a whole.

## Project description

Taking the above into account, IPTS launched a project to support eGovernment, eHealth and eLearning policy developments in the ten New Member States<sup>9</sup> that joined the European Union in 2004. The research, which was carried out by a consortium led by ICEG EC in 2005-2007, focused on the three key application areas in order to assess their current status and developments in the field, the most important opportunities and challenges they face, the lessons other member states may learn from them, and the related policy options. National experts from each country gathered the relevant qualitative and quantitative data for analysis, with a view to developing an assessment of each country's current state and trajectory, and to determine their main factors. These served as a

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<sup>1</sup> The views expressed in this article are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission.

<sup>2</sup> "Working together for growth and jobs. A new start for the Lisbon Strategy" COM(2005) 24 final.

<sup>3</sup> "i2010 – A European Information Society for growth and employment" COM(2005) 229 final.

<sup>4</sup> Lifelong learning means all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective.

<sup>5</sup> [http://ec.europa.eu/education/policies/2010/et\\_2010\\_en.html](http://ec.europa.eu/education/policies/2010/et_2010_en.html)

<sup>6</sup> [http://ec.europa.eu/education/programmes/llp/index\\_en.html](http://ec.europa.eu/education/programmes/llp/index_en.html)

<sup>7</sup> At that time: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia, and Turkey

<sup>8</sup> For a list of complete projects and related reports see <http://fiste.jrc.es/enlargement.htm>

<sup>9</sup> Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia

basis for drawing conclusions for policy and research. Data sources such as international and national survey data, literature, policy documents, and expert interviews were used to capture the most recent situation of each country.

In this study, eLearning was defined as encompassing both learning through the use of ICT and learning the necessary competences to make use of ICT in the knowledge society. Hence, the study considered the use of ICT in formal education<sup>10</sup> (schools and higher education), the use of ICT in training and learning at the workplace (professional education), the use of ICT in non-formal<sup>11</sup> education (including re-skilling and training for jobseekers) and the use of ICT in everyday life (digital literacy/digital competence and informal learning<sup>12</sup>). This article summarizes the results of this research on eLearning, complementing them with European statistical data. First, the context for eLearning in the EU-10 is described. Then, an overview of the status of eLearning in different educational environments in these countries is presented, as described in the national project reports. The article concludes with the challenges and issues for eLearning policies. The national reports and the synthesis report developed in the study can be found on the IPTS website at: <http://ipts.jrc.ec.europa.eu/>.

## EU-10 context for eLearning

The synthesis study of the reports shows clearly that EU-10 is not a homogeneous group of countries. EU-10 countries differ in many respects, as do those in the EU-15. Statistical averages do not necessarily reflect the common situation in all countries, especially since weighted averages are heavily influenced by the data from Poland, which has a higher population than all the remaining countries put together. The cultural environments and ICT-related development stages in the countries also differ. For example, Estonia and Slovenia have a long and strong tradition in developing ICT-based services, whereas the other states do not. This is also related to a major difference between small and large countries, with the former being more able to reform, innovate and absorb technical opportunities. Therefore, just comparing the averages may hide important differences, and the analysis needs to consider specific country examples and situations. The common contextual features of EU-10 include large income inequalities, social divides, regional disparities and more persistent long-term unemployment than in the EU-15. This puts further emphasis on the need to consider not only solutions for the EU-10 as a group, or as individual countries, but also to pay attention to the different regions and population groups within the countries.

### *Educational context*

In the EU-8,<sup>13</sup> compulsory education was a policy priority before transition began. Even today, many of these countries show good performance in the education and training 2010 benchmarks, reaching top positions among all European countries. For example, regarding upper secondary attainment,<sup>14</sup> the top five positions in the whole EU are held by the Czech Republic, Poland, Slovakia, Slovenia, and Lithuania, which are all already above the EU target value for 2010 (European Commission, 2008). As regards their share of early school leavers, the Czech Republic, Poland, and Slovakia are the best performers, reaching the EU target value of 10%. In these participation measurements, only Malta shows values clearly behind the EU averages. In 2006, only 50.4% of 20-24 year-olds had completed upper secondary education in Malta, while the EU-27 average was 77.8% (European Commission, 2007). The Maltese national report suggests that this comes from the traditional family oriented culture, i.e. which emphasises family values more than participation in education.

Participation in tertiary education has grown rapidly in many of the EU-10 countries. Slovakia and Poland have shown the strongest growth in the whole EU in the number of Mathematics, Science and Technology graduates in

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<sup>10</sup> **Formal Education** is typically provided by an education or training institution. Formal learning is structured (in terms of learning objectives, learning time or learning support) and leads to certification. Formal learning is intentional from the learner's perspective.

<sup>11</sup> **Non-Formal Education** is provided by any organised, structured and sustained educational activities outside formal education. Non-formal education may take place both within and outside educational institutions and cater to persons of all ages. Non-formal learning is intentional from the learner's perspective, but typically does not lead to certification.

<sup>12</sup> **Informal Learning** is learning that results from daily life activities related to work, family or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional, but in most cases it is non-intentional (or "incidental"/random).

<sup>13</sup> EU-10 without Cyprus and Malta

<sup>14</sup> EU target is that in 2010, 85% of 20-24 year-olds have completed upper secondary education

recent years. All EU-10 countries perform well in gender balance, with Estonia achieving top values for female MST graduates (43.5%) in 2006 (European Commission, 2008). In most of the EU-10 countries, public expenditure as a percentage of GDP is typically on the same level as, or higher than, it is in the EU-15. In 2004, the EU-10 average was 5.4% vs. 5.2% in the EU-15.

However, despite the good level of basic education and public investment, EU-10 countries generally are behind the EU-15 countries in adult participation rates in lifelong learning, i.e. participating in organized education and training activities. The EU target for 2010 on this measurement is 12.5% and the 2006 EU-15 average was 11.1%. Slovenia shows the 5<sup>th</sup> best performance in the whole EU, with 15%, but all other EU-10 countries have participation rates among the lowest in the EU-27 (European Commission, 2007).

### ICT access, use and skills

Although many of the EU-10 countries are still behind the EU-15 in ICT development, they have been catching up quickly and the rates for access, usage and skills are getting close to the EU-15 average (see Figure 1). Hence, diffusion of ICT is no longer a primary barrier, and the example of Slovakia shows that lower household internet access does not necessarily hinder the development of ICT usage and skills. Furthermore, many of the EU-10 countries have invested in public internet access points, in order to improve citizens' the access to ICT.

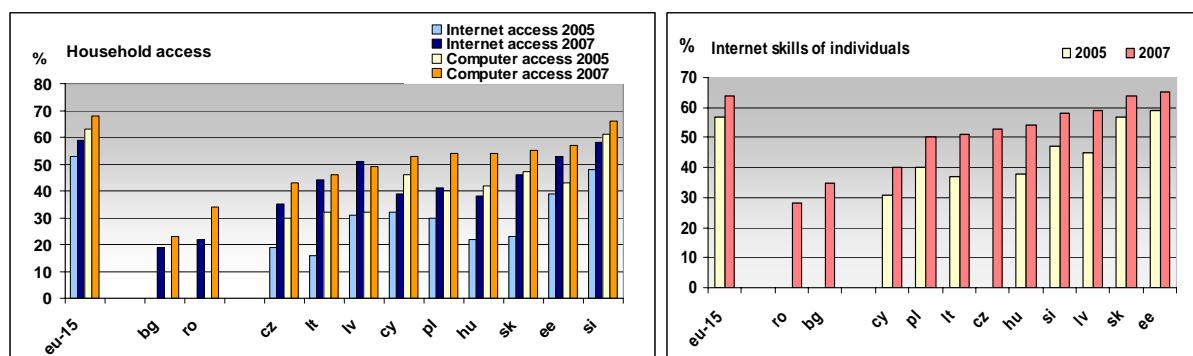


Figure 1 – Development of household access and internet skills in the New Member States (Eurostat)

However, access and skills still remain a constraint for remote areas, less developed regions, and some user groups such as ethnic minorities or unemployed (see examples in Figure 2). In most of the EU-10 countries, these divides are larger than the EU-15 average. ICT take up is highest among the young and the educated. For example, while in the EU-15, 41% of the 55-74 year-olds had used a computer during the previous year, in the EU-10 this value ranges between 12% in Lithuania to 25% in Hungary (Eurostat, 2007). However, as opposed to the other divides, the gender gap in computer usage in the EU-10 countries is typically smaller than the EU-15 average.

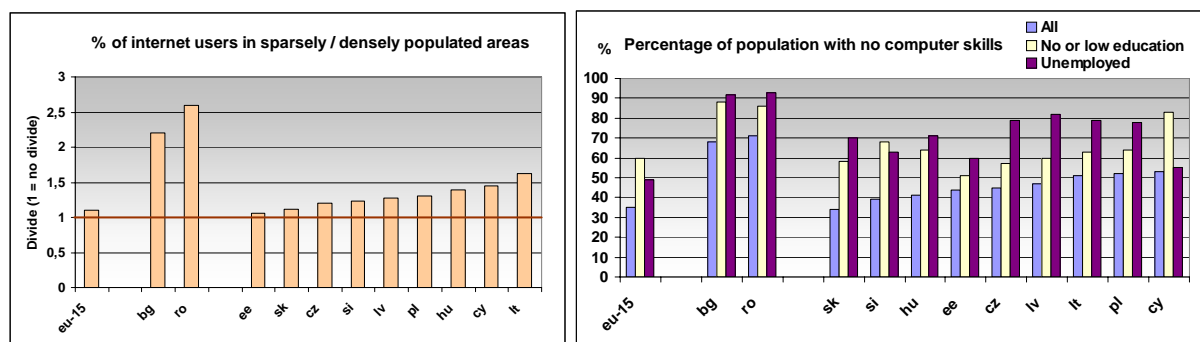


Figure 2 – ICT divides in the EU-10 countries in 2007 (based on Eurostat).

## **ICT in educational institutions**

In principle, schools in the EU-10 are reasonably well supplied with ICT equipment and internet connections. Most of the EU-10 countries are above the EU-15 average of 96.5% in the internet access of schools, with Poland showing the lowest figure (92.7%) (Empirica 2006). Schools in both densely and thinly populated areas have internet access, but the schools in the thinly populated areas more often lack broadband connection. Furthermore, EU-10 schools have significantly fewer internet-connected computers available for pupils, on average 6 computers per 100 pupils, while the EU-15 average is 11 computers per 100 pupils. Furthermore, according to the country reports, computer equipment at schools is often old and inadequate for the requirements of the modern software and communications. No data about computer equipment at higher education could be gathered from the study reports, but all assert that higher education institutes are the best equipped part of the education system in the EU-10 countries in terms of computers and internet connections.

## **The state of eLearning**

The study showed that it is difficult to find quantitative or qualitative data showing the extent of different eLearning developments in the EU-10 as broadly as originally defined in the study. Hence, the analysis of was mostly based on institutional structures, policies, development projects, and European statistics.

### **Schools**

In the EU-10, schools provide separate ICT courses more often than in EU-15, with an EU-10 average of 91% vs. 46% in the EU-15. However, computers are used less in classes in general (supposedly, this arises partly from the fact that there are simply fewer computers available). In the EU-10, only 54% of pupils use computers in class vs. 69% in the EU-15. Teacher survey responses reflect the same issue – in the EU-10, only 56% of teachers use computers in class whereas 65% in the EU-15 use them. (Empirica, 2006)

A digital divide can also be detected among school teachers. For example, from the EU-10 countries Hungary has both the largest share of active ICT using teachers and teachers with no user experience of ICT.<sup>15</sup> However, teachers in the EU-10 do not seem to consider lack of ICT skills to be a major barrier.<sup>16</sup> There are, however, considerable differences between teacher generations; e.g. according to a Maltese national study, 59.5% of teachers aged 55-59 are not confident with ICT, while only 2.8% of teachers younger than 25 express the same concern. Hence, the high confidence in ICT skills may be related to the issue, suggested by statistics, that EU-10 countries have a larger share of young teachers than EU-15 countries.<sup>17</sup>

### **Higher education**

A common feature of ICT in higher education in the EU-10 seems to be that all the countries are providing distance learning courses with ICT. For example, the Estonian report describes a distance learning programme of 17 courses developed by the Estonian Banking Association and University of Tartu. In the Polish virtual university, there are more than 100 e-courses available, which support traditional teaching or are offered as separate courses on the internet. According to Slovenian report, a third of tertiary education organisations has recognized eLearning as a strategic objective and has adopted some forms of virtual learning environments. Universities seem to employ learning management systems in order to support both their local and distance students. However, no quantitative or qualitative information is available on the ways in which ICT is actually incorporated into teaching and learning at the universities, i.e. what kind of learning activities it is supporting and enabling. Furthermore, country reports do not show many networking activities or much collaboration between universities. An opposite example is Estonia, with its national eUniversity (and eVocational school) networks.

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<sup>15</sup> In Hungary, 26.8% of teachers using computers in class use them in more than 50% of their lessons (EU-15 average is 16%). But, 14.8% of Hungarian teachers have no ICT user experience, vs. EU-10 average of 6%. (Empirica, 2006)

<sup>16</sup> 30.6% of EU-10 teachers perceive that teachers in their school do not have enough ICT skills (42% in EU-15) and missing skills are less often a reason for not using computers in class (10% in EU-10 vs 27% in EU-15). ) (Empirica, 2006).

<sup>17</sup> For example, when measuring the share of secondary school teachers with age <30, seven EU-10 countries are among the top 12 EU countries with young teachers. When measuring the share of secondary school teachers with age >50, six EU-10 countries are among the 10 EU countries with smallest share of older teachers (Based on Eurostat statistics from 2005).

## Adult learning

Information about non-formal and informal adult learning is scarce, also possibly due to the fact that lifelong learning has less take up in EU-10 countries than in the EU-15 in general. Figure 4 illustrates the general individual internet usage for organized training and education in the EU-10. The people aged 16-24 (i.e. including students) form a major group of these internet users. An interesting issue is that companies declare using eLearning more in the EU-10 than in the EU-15 (see figure 4), but survey data about using internet for education and training activities show low shares among employees. The country reports assert that often employers are not supportive of learning, which they consider to be the responsibility of the employees. Furthermore, the reports suggest that eLearning is unequally distributed among enterprises and employees; larger enterprises have more broadband connections and employees in higher positions have more opportunities for eLearning. Enterprises favour standardized online courses with internationally recognized implementation and certification,<sup>18</sup> and have developed few in-house eLearning solutions of their own.

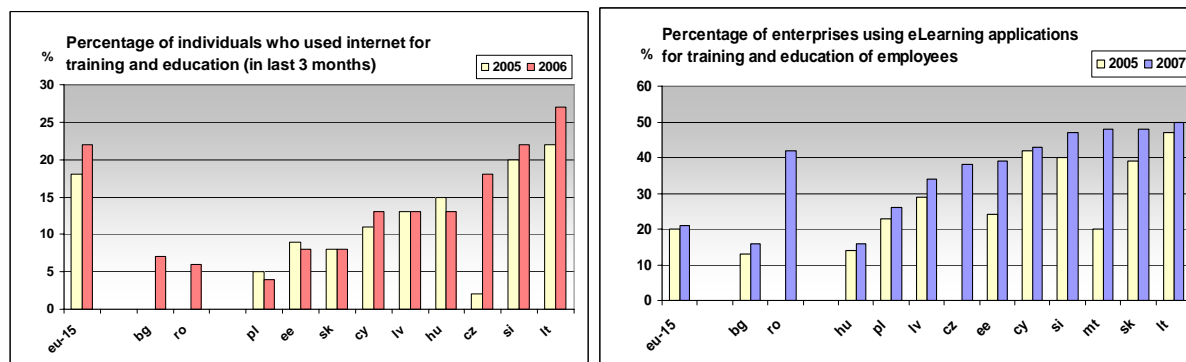


Figure 3 – ICT supported learning at enterprises and in general in the EU-10 (Eurostat)

## eLearning and Inclusion

The country studies also report eLearning initiatives to improve inclusion in the knowledge society, supported by both public and private funding, and sometimes partnered by international companies. For example, the Hungarian Digital Secondary School helps adults to finish the maturity exam through distance education, and is targeted especially at the Roma minority who have difficulty in accessing labour markets. In Latvia, the Latvia@World project provides training for the unemployed in poorer districts, rewarding participants who complete the course with a certificate and providing them with internet access, in order to help them to look for and get jobs.

## Policy challenges

Overall, eLearning is progressing in the EU-10 countries, although information society developments started much later in most of these countries than in the EU-15. The take up of the Information society has been fast and the development of other eServices (eGovernment, eHealth) also increases capabilities and interest in using ICT for learning. The economies of the EU-10 are changing, with the decrease of the share of agriculture and industry being compensated by the growth of the tertiary sector both in employment and output.<sup>19</sup> Because the service sector is labour intensive and requires employees with high general qualifications as well as ICT knowledge and skills, the demand for learning to use ICT and with ICT in lifelong learning has been rising.

The reports show dispersed IS and education policy approaches for eLearning developments in the EU-10, lacking coordination and common objectives. Furthermore, the policies have often concentrated only on developing ICT infrastructure and distance learning. It seems that eLearning has been mostly considered as developing online materials, “transforming” existing courses into online (often self-learning) courses, and not as an

<sup>18</sup> For example, Cisco or Microsoft certified courses, European Computer Driving Licence (ECDL)

<sup>19</sup> The service sector currently produces on average around 60% of the GDP of the EU-10, and its share has been continuously increasing: similar trend is observed in case of employment.

opportunity for ICT to enable educational innovations. However, all the reports suggest that eLearning is now receiving more policy attention.<sup>20</sup> Issues for regional, national and EU policy development include:

- **Addressing low digital literacy, ICT infrastructure, and access.** Although general ICT access, supply and skills have been improved, they are still limiting eLearning developments, especially in rural areas and for disadvantaged user groups. The unemployed, older workers, employers and teachers are lacking basic ICT skills, and this hinders access and motivation for ICT-enabled learning. Furthermore, in some areas, educational institutions are lacking broadband connections and up-to-date ICT equipment.
- **Promoting awareness of the potential of ICT for innovation and learning.** The reports show only limited implementation of eLearning opportunities, as well as a resistance to change. There is a need to better inform learners, teachers, and organizations about the benefits that ICT can offer them, and to support the change towards more innovative practices in educational institutions and workplaces.
- **Improving settings for ICT and innovation at educational institutions.** The reports point out that educational institutions do not provide encouraging environments and incentives for teachers to develop new forms of learning. In many countries, the regulatory framework does not promote change, e.g. by requiring ICT skills or eLearning didactics or encouraging and providing additional training. Neither is it common for educational institutes to create their own strategies for developing ICT and innovation in education, although this could support all the actors with clear guidelines.
- **Overall vision and policy coordination to support ICT and innovation for lifelong learning.** The reports show a need to coordinate education policies for innovative learning approaches with IS policies for ICT infrastructure and ICT skills, employment policies for developing and maintaining labour market skills and inclusion policies for accessing learning. For example, learning at workplaces and for groups in the need of re-skilling for employability could be supported in new ways with ICT.
- **R&D for developing and sharing solutions.** As EU-10 countries and regions have different settings, there is no single model of ICT-enabled learning to be copied and distributed. The policies and regulations could aim to empower actors in their local contexts to develop solutions with clear added value in their environment and then to document and share their experiences in networks. This would improve the variety of best practices available to support learners, teachers and institutions starting their eLearning efforts in similar contexts, e.g. with a specific need to pay attention to local languages.
- **Developing measurements.** Tools for measuring and guiding innovative eLearning advancement and usage would be very beneficial both for EU-10 countries and the development of ICT and innovation for lifelong learning in Europe as a whole. Furthermore, the reports state that in the EU-10, adult learners and companies are often suspicious of the quality of online courses. This shows the need for establishing and promoting mechanisms for quality assurance in eLearning.<sup>21</sup>
- **Structural funds.** National reports suggest that EU structural funds provide an important opportunity to develop eLearning in the country, as local public investment possibilities are scarce. However, the usage of resources should be guided with efficient monitoring and assessment systems, to ensure not only the absorption of funds but also effective spending on ICT enhanced learning and innovation.

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<sup>20</sup> For example, Slovenia and Malta are preparing national eLearning strategies.

<sup>21</sup> See, for example, the work of European Foundation for Quality in eLearning (EFQUEL), <http://www.qualityfoundation.org/>