

Selected aspects of development of the Information Society in the enlargement process of the European Union

Vybrané aspekty rozvoja informačnej spoločnosti v procese rozširovania Európskej únie

K. HENNYEYOVÁ, I. OKENKA

Slovak University of Agriculture in Nitra, Slovak Republic

Abstract: The information society represents the most fundamental change in our life, with huge opportunities for all people. Program *eEurope* has been very successful in extending Internet connectivity and has helped to obtain the adoption of the current legal framework for electronic communications and for e-commerce. The *eEurope* initiative should also become part of the enlargement process of the European Union. Slovakia and other candidate countries take part in realization of the program *eEurope+* to support activities in using new information and communication technologies (ICT). *eEurope 2005* carries the ambitious objective of achieving "Information Society for All". This means not only overcoming geographical and social differences, but also ensuring an inclusive digital society that provides opportunities for all.

Key words: *eEurope*, information society, European Union, information and communication technologies, Internet

Abstrakt: Informačná spoločnosť reprezentuje zmeny v našom živote, spojené s obrovskými možnosťami pre všetkých ľudí. Plnenie programu *eEurope* je úspešné v oblasti zvyšovania pripojenia na Internet, čo pomáha budovať rámec pre rozvoj elektronickej komunikácie a elektronickeho obchodovania. Iniciatíva *eEurope* má úlohu aj v procese rozširovania Európskej únie. Slovensko a ostatné kandidátske krajiny sa zapojili do realizácie programu *eEurope+* na podporu aktivít spojených s využívaním IKT. *eEurope 2005* si stanovuje dosiahnutie ambiciózneho cieľa – „Informačná spoločnosť pre všetkých“. To znamená nielen prekonanie geografických a sociálnych rozdielov, ale tiež zabezpečenie digitálnej spoločnosti, ktorá poskytuje príležitosti pre všetkých.

Kľúčové slová: *eEurope*, informačná spoločnosť, Európska únia, informačné a komunikačné technológie, Internet

INTRODUCTION

Europe must play an active role in the development of a more equitable information society, which offers fair chances of inclusion to all countries. Closing the 'digital divide' between developed and developing countries is a key goal for the European Union.

Information and communication technologies are necessary to be seen as a tool for increase of prosperity and corporation competitiveness.

The *eEurope* targets can only be achieved if Member States, the European Parliament and the European Commission are ready to commit themselves to this Action Plan and to the reassessment of priorities, which it will imply. None can afford to relax, no matter how advanced they may be relative to others. Each Member State must be ready to set new priorities, to provide an adequate funding and to remove obstacles to achieve the targets. Each will have to draw the attention of citizens to the emerging possibilities of digital technologies to help to ensure a truly inclusive information society. Only through the positive action now can info-exclusion be avoided at the European level. The problems connected with the in-

formation society are also treated in the works of Sobotka (2002), Hennyeyová (2003), Popelka (2000).

eEurope is a key element of the EU policy on Information Society and is closely intertwined with the two other pillars of this policy: legislation and research. Legislation and appropriate regulation play an essential role in ensuring dynamic and competitive markets. Competition offers incentives to innovate and invest, and increases consumer choice. Research is the key to future innovation and competitiveness.

e-Learning is also an important catalyst for change, with organizations using ICT to transform the way they learn, they interact and the way they support the essential processes of creativity, innovation and change. The following authors have devoted their attention to the questions of e-learning: Tóthová (2001), Tóthová, Hennyeyová (2002), Mikulecká (2002).

MATERIAL AND METHODS

The *eEurope* initiative is an integral part of the Lisbon strategy launched by the European Council in March 2000

to respond to “*the need for the Union to set a clear strategic goal and agree a challenging programme for building knowledge infrastructures, enhancing innovation and economic reform, and modernizing social welfare and education systems*”. The European Council saw information and communication technologies (ICT) as a powerful tool to achieve these goals because of their potential impact on productivity and growth.

The European Council held in Lisbon in March 2000 set the ambitious objective for Europe to become the most competitive and dynamic economy in the world. It recognized an urgent need for Europe to quickly exploit the opportunities of the new economy and in particular the Internet.

As a result, the actions are clustered around three main objectives:

1. *A cheaper, faster, secure Internet*
 - a) Cheaper and faster Internet access
 - b) Faster Internet for researchers and students
 - c) Secure networks
2. *Investing in people and skills*
 - a) European youth into the digital age
 - b) Working in the knowledge-based economy
 - c) Participation for all in the knowledge-based economy
3. *Stimulate the use of the Internet*
 - a) Accelerating e-commerce
 - b) Government online: electronic access to public services
 - c) Health online
 - d) European digital content for global networks
 - e) Intelligent transport systems

The eEurope 2002 action plan agreed at the Feira European Council in 2000 focused on exploiting the advantages offered by the Internet and therefore on increasing connectivity. Its achievements are summarized in a report the European Commission presented in February 2003. This initiative was complemented by eEurope+, covering the candidate countries and still under way. The main goal of the action plan eEurope+ is to support activities in using new ICT and to enhance innovation and economic reform in candidate countries.

eEurope 2002 has been very successful in extending Internet connectivity and has helped to obtain the adoption of the current legal framework for electronic communications and of important legislation for e-commerce. However, the effective use of the Internet has not developed as fast as connectivity. Policy attention has therefore shifted towards the support to the effective use of ICT through an increased availability of high quality infrastructure, the availability of attractive services and applications and the encouragement of organizational change.

As a result, in March 2002, the Barcelona European Council called on the Commission to draw up a new action plan focusing on “*the widespread availability and use of broadband networks throughout the Union by 2005 and the development of Internet protocol IPv6; the security of networks and information, e-Government, e-*

Learning, e-Health and e-Business”. In June, the Seville European Council gave a broad political endorsement to the eEurope 2005 action plan, which was finally adopted by the Council in December 2002.

RESULTS AND DISCUSSION

Internet access for all

Internet penetration has increased rapidly in the EU since the Lisbon Summit, with more than 40% of households now connected as well as most businesses and schools. By the Lisbon target date of 2010, the Internet will become the main medium for the transmission of information, communication, transaction and media in Europe.

Currently, the most common way to access the Internet is through dial-up connections, a narrowband service that uses the existing local telephone network and is mostly charged on the basis of time. The main challenge ahead is to accelerate the transition from communications based on narrowband networks to communications based on *broadband* networks, providing high-speed and always-on access to the Internet.

Broadband stimulates the use of the Internet and enables the usage of rich applications and services. Its benefits spill over to the areas of e-business, e-learning, e-health and e-government, improving the functionality and performance of these services, and further extending the use of the Internet. As such, it is considered the necessary infrastructure at the basis of the realization of those productivity gains that a more effective use of the Internet can deliver.

Currently, broadband access is mostly offered over legacy infrastructure, in particular over the telephone copper network using ADSL technology, and over cable TV networks using cable modems. These technologies require the upgrading of existing networks and can therefore be brought to the market relatively fast. As such, they are expected to remain the dominant platforms in the short to medium term, and drive the transition to a more mature market characterized by a more pervasive deployment of new infrastructure (such as fibre optic, fixed wireless access, third-generation mobile systems, satellite, etc.).

In Europe, the most common way to deliver broadband is through ADSL. As long as the competition from alternative networks is limited, and competition for ADSL provision is not effective, regulation remains a necessary tool to ensure the delivery of broadband services at competitive prices. In the long term, once the market has taken off, the effective competition between different networks is expected to occur under the competitive market conditions. Data show that broadband penetration is the highest in those countries featuring effective facility-based competition.

For the concerned countries, national strategies will also include a plan for the use of Structural Funds in

support of broadband infrastructure. In many rural and remote regions, geographical isolation and low density of population can make the cost of upgrading telephone lines to broadband capability unsustainable. Here, Structural Funds can be used to increase the infrastructure availability.

A new version of the Internet Protocol (IP) communication and addressing method for the Internet, called IPv6, has been designed over the past 8 years by a vendor-neutral body called the IETF (Internet Engineering Task Force). In addition to providing virtually unlimited address space, IPv6 offers some new unique features such as enhanced security and auto-configuration (plug and play of a device attached to the Internet) which respond to the requirements for a secure and easy home Internet.

In order to realize both the full development and the future potential of eEurope and the extensive deployment of wireless services for the benefit of business and society, an early adoption of IPv6 is of crucial importance. While wireless may be the main focus for IPv6, other application areas, such as home networking, peer-to-peer services and machine-to-machine communications, will be hamstrung in their development without the rapid adoption of the new protocol.

e-Government

e-Government aims to deliver better quality public services that are accessible for all. It aims to increase the productivity in the public sector, so that services can be provided at a lower cost and time is freed up for more personal interaction. It can also enhance participation in the public policy development and thus reinforce democracy, as well as to help increasing the transparency and accountability of the public sector. In short, e-Government is a means to achieve a more productive, inclusive, and open public sector in Europe.

e-Government can only deliver its full benefits if investment in ICT is accompanied by the re-organization of administrative processes and improvement of skills in the public sector. These changes can be profound and will often encounter barriers. Therefore, e-Government can only succeed with strong political leadership. Progress can be accelerated if there is a willingness to start small, learn fast from and with the users (citizens and companies) and from the best practice experiences elsewhere, and then to move to a wider deployment.

e-Government could transform the old public sector organization and provide faster, more responsive services. It can increase efficiency, cut costs, increase transparency and speed up standard administrative processes for citizens and business.

e-Learning

Modern e-learning solutions recognize the importance of learning as a social process and offer possibilities for

collaboration with other learners, for interaction with the learning content and for guidance from teachers, trainers and tutors. These learner-centred approaches have put the learners back in command, with a wealth of learning resources at their fingertips. Teachers and trainers once more play a central role, using virtual and traditional face-to-face interactions with their students in a 'blended' approach. There is a whole body of experience emerging and the major challenge is to understand the strengths and weaknesses of e-learning, to identify the factors that make its use a success and to help to disseminate good practice.

Over the last ten years, the spread of the Internet has brought about an unprecedented access to a wealth of information and resources. In the area of education and training, the use of ICT and the Internet has revolutionized the way we learn and is helping our education and training systems to modernize for the knowledge society.

More recently, with the advent of broadband communications, our schools and universities are able to work together on common projects of real added value for the learner – projects involving a true interaction with digital content, a real-time collaboration at a distance and a fast access to images, film, etc. Of particular interest is the concept of the virtual universities, where thanks to ICT and the Internet, students and researchers are freed from the physical constraints of a university to enjoy the remote access to online curricula, virtual mobility and shared resources, to mention but a few of the advantages.

Member States are making visible progress in connecting schools to the Internet. More needs to be done:

- a sufficient number of computers and fast Internet connections,
- the installed equipment and available software, content and services must correspond to educational needs,
- the actual usage of these new tools must be assured by well-trained teachers.

e-Business

e-Business has been defined as comprising both e-commerce (buying and selling on-line) and the restructuring of business processes to make best use of digital technologies. This definition reflects the current need to follow a more holistic view of e-business, with a stronger emphasis on the productive use of ICT.

The enhanced use of ICT has a strong impact on business-to-business and business-to-consumer relationships as well as the way key business processes are conducted. It can save costs and time, enable businesses to reach a wider market and to respond more quickly to customer demands. These benefits open up the way towards fundamentally new ways of doing business. The policy objective is to encourage the integration of e-business into normal business by promoting the take-up of e-business services. This is the key element of the wider eEurope and Lisbon Strategy objective to improve the

competitiveness of European enterprises and to raise their levels of productivity and growth.

New challenges have to be tackled at the level of individual European businesses. Small and Medium Sized Enterprises (SMEs), in particular, encounter barriers, both legal and practical, to the successful implementation and management of e-business processes. There remains a shortage of human resources, notably e-skills.

The roadmaps presented in this section focus on the main e-business challenges, which can be summarized under four headings:

- identifying and removing barriers,
- awareness and support,
- interoperability and standards, developing flexible solutions,
- human resources and skills.

CONCLUSION

Network and information security is a prerequisite for a well functioning information society. As the network and information security has become a core policy issue, the Commission together with the Member States have launched a comprehensive strategy for these issues as described in the eEurope 2005 action plan. Digital technologies provide the opportunity to more easy access and re-use of the wealth of information held in the public sector. Electronic access would also make a major contribution to accelerating the transition to the information society by stimulating Internet services that are more relevant to Europeans.

The eEurope initiative should also become part of the enlargement process of the European Union.

REFERENCES

- Hennyeyová K. (2003): Program e-Europe Plus a informačná stratégia podnikov. In: Zborník vedeckých prác z medzinárodnej konferencie K aktuálnym otázkam v PPOK v období príprav pre vstup SR do EÚ. Račkova dolina: 38–42; ISBN 80-8069-184-3.
- Mikulecká, J. (2002): E-learning na vysokých školách? In: Zborník zo seminára E-learn. Žilina. ŽU: 54–60; ISBN 80-7100-941-5
- Popelka V. (2000): Informatizácia rezortu a informačný systém poľnohospodárskeho subjektu. In: Zborník vedeckých prác z MVD 2000 III., pp. 84–87; ISBN 80-7137-717-1.
- Sobotka P. (2002): Slovensko na prahu budúcnosti (IT ako projekt národnej prosperity). Bratislava, Grada, 110 p.; ISBN 80-247-0446-3.
- Tóthová D. (2001): E-vzdelávanie v poľnohospodárskych podnikoch. In: Zavádzanie a inovácia informačných technológií v poľnohospodárskych podnikoch. Nitra, SPU: 70–73; ISBN 80-7137-962-X.
- Tóthová D., Hennyeyová K. (2002): Preparation of e-learning methodology in distance learning. *Agricultural Economics – Czech*, 48 (8): 364–366.
- <http://www.eeurope.sk/akcnyplan/actionplan.html>
- http://www.europa.eu.int/information_society/eeurope/2005/index_en.htm
- <http://www.telecom.gov.sk/infspol/index.htm>
- http://www.telecom.gov.sk/telekom/eeurope_sk1.html

Arrived on 22nd June 2004

Contact address:

Doc. Ing. Klára Hennyeyová, CSc., prof. Dr. Ing. Imrich Okenka, PhD., Slovenská poľnohospodárska univerzita v Nitre, Trieda A. Hlinku 2, 949 76 Nitra, Slovenská republika
e-mail: Klara.Hennyeyova@uniag.sk, Imrich.Okenka@uniag.sk
