Newsletter - *Calibrated for Creative Communications*

Vol. 9, no. 2, Summer 2011

PAINT IT SUMMER

The feedback and reviews regarding the Spring 2011 NL issue were overwhelming and we take this opportunity to thank our readership for the generosity.

The interest was greatly due to the material we published in the column "The European Digital Agenda – 2011 and Beyond". We now continue with two more articles focusing on Bulgaria and Hungary.

The current issue features a review on R&D in the European Union's ICT landscape, an article on UNESCO's ICT in Education Program and a report on a project within the Leonardo da Vinci Program focusing on Teacher Training and involving several institutions from the IT STAR region.

The Summer newsletter is also pleased to report on IT STAR's recent 10th Anniversary and the debate on the Association's strengths, weaknesses and future directions.

In the MultiCulti column we take you to Piran – once an outpost of Venice, currently a jewel in the crown of the Slovenian coastline.

There's much more, including information on forthcoming events of IT STAR and its member societies.

Join us and take the Journey,

Plamen Nedkov

Contents

Editor

P. Nedkov, Leesdorfer Hauptstr. 96
A-2500 Baden, Austria
e-mail: **editor@starbus.org**, web-site: **nl.starbus.org**

Letters to the Editor

Extracts from emails to the Editor with respect to the last issue … comments and suggestions are always welcome – our coordinates are on page 1.

"I am so glad to contribute to the IT STAR activity and I intend to continue also in future. I appreciate so much your full and precious commitment".

Bruno Lamborghini (IT)
EITO Chairman and Past President of AICA

"… I see that IT STAR has developed into a very powerful and effective organization. And I am impressed by the quality of your Newsletter, which is very informative. I very well remember with great pleasure the start in 2001 in Portoroz and the meeting later in the year in Como".

Peter Bollerslev (DK)
IFIP President for the period 1998-2001

"The NL has come out as excellent as ever and I am sure our constituency will enjoy reading it. It is really a pleasure to be able to contribute and all the more so as personal views are for various reasons not in a high demand.

The Proceedings [of the 5th IT STAR WS on Electronic Business ISBN 9788890540615 – the Editor] are an important overview of the state of the art of e-business in the region and can serve as an orientation point for future efforts to governments and other players in the area. If there are any copies left I would like to order nine more".

Niko Schlamberger (SI)
SSI President

"The Spring issue of the IT STAR Newsletter is very impressive, as usual, and I am very sorry that the efforts to get a Hungarian contribution to the Digital Agenda topic have not been successful this time".

Balint Domolki (HU)
JvNCS Honorary President

"It's an honor, that our paper was included in the Jubilee issue of IT STAR's Newsletter, which is - as always - so balanced and really interesting. Thanks!

And, congratulations with the 10th anniversary of IT STAR! Without your coordination - it would be impossible. And now, under the European Digital Agenda slogan - IT STAR has even better perspectives to broaden activities; wish good luck to you and IT STAR in the future, too!"

Saulius Maskeliunas (LT)
LIKS President ■

EDITORIAL POLICY

This Newsletter maintains a world-class standard in providing researched material on ICT and Information Society activities from the perspective of Central, Eastern and Southern Europe (CESE) within a global context. It facilitates the information and communication flow within the region and internationally by supporting a recognized platform and networking media and thus enhancing the visibility and activities of the IT STAR Association.

The stakeholders whose interests this newspaper is addressing are

- IT STAR member societies and members
- ICT professionals, practitioners and institutions across the broad range of activities related to ICTs in government, business, academia and the public sector in general
- International organizations

Special arrangements for the production and circulation of the Newsletter could be negotiated.

The newsletter is circulated to leading CESE ICT societies and professionals, as well as to other societies and IT professionals internationally. Everyone interested in CESE developments and working in the ICT field is welcome to contribute with original material. Proposals for articles and material for the Newsletter should be sent two months before the publication date to info@starbus.org.

10 Years After

IT STAR's 10th Anniversary – Time to Measure

10 Years after its inaugural meeting in Portoroz (SI), IT STAR met on 15 and 16 April 2011 in the same hotel Bernardin, where it was founded, for a family reunion intended to commemorate the event and to assess the journey and the road ahead.

The 3 past coordinators shared their views and recollections and on the basis of a general debate the following success stories, strengths, weaknesses and possible future directions were singled out.

Success stories and strengths

IT STAR as a unique forum of national member societies, representatives of academia, government and industry has successfully addressed key topics of the Information Society Agenda and has offered recommendations in the form of conference declarations to national and international stakeholders and governments and to the EC.

It has developed as an agile and flexible organization that operates on the basis of common interest and friendship between its membership. It has helped members to integrate in international activities and to join international organizations such as IFIP and CEPIS.

An important aspect of IT STAR's development is that it has found its own niche in the broad spectrum of international contacts and ICT collaboration without competing with the core activities of its member societies. This to a great extent determines its attraction and usefulness to its membership but also to the EU.

Among the more tangible achievements are the IT STAR conference series and books, and the IT STAR Newsletter.

Weaknesses

It was observed that there are a few member societies that could be more active in IT STAR as they have the potential for that. Moreover, IT STAR does not collect membership fees and the financial aspects of their participation are not a hindrance. Some felt that the fact that no membership fees are collected is both a strength and a weakness since IT STAR does not have its own financial resources to initiate and carry-out activities.

Future directions

Everyone was happy with the successful IT STAR series of events and publications and the statements and recommendations that are generated by these events and circulated widely. This stream of activities will be supported in future. It would be important to attract more young people and women in this endeavor and efforts should be made to this end.

As the IT Association of leading ICT Societies in Central, Eastern and Southern Europe, IT STAR has gained experience and recognition as a facilitator of regional ICT cooperation and this must be exploited in further active participation in EU projects and activities.

■

Agenda for e-Infrastructure Development in Bulgaria

Kiril Boyanov

Prof. Boyanov is Academician (Full Member) of the Bulgarian Academy of Sciences and Bulgarian representative to IT STAR.

Kiril has provided long-term leadership within the Bulgarian ICT industry and in ICT R&D, notably as Director of the Institute of Parallel Processing at BAS.

The necessity to create, develop and maintain a sound e-infrastructure in the countries of the European Union (EU) gets bigger by the day. Scientists and researchers from all areas of knowledge are working on the latest problems, often using simulation models that are much easier to implement nowadays, facilitated by the increased computing power of modern computing systems.

For the development of the European electronic infrastructure (e-infrastructure), it is important to optimize the cooperation and utilization of existing electronic resources, to create innovation models for all economic and social groups that can access the existing vast volume of data and information. This would also facilitate the birth of new ideas and innovations – an area, where the EU should have a leading role.

The foundation for close cooperation with EU in this field has been laid in Bulgaria with the development of several important components. The Bulgarian Research and Educational Network (BREN), the National Grid center, and the national supercomputing center are important structural units. One must also take into consideration the digital libraries, which are being created at present.

The Bulgarian electronic infrastructure is being built on the basis of the high speed network GEANT[1], the European Grid initiative (EGI)[2] and the partnership in the area of high performance computer systems (PRACE) [3], allowing the connection of various end-users from scientific organizations, international centers, laboratories, universities and individual researchers.

Bulgaria actively participates in the European project GEANT3 through BREN, which will allow the international connectivity of the country to be at a rate of 10Gb/s during the next few years. Right now, BREN provides the traditional infrastructural services like communication, data access, etc. All universities, colleges and scientific organizations are to be connected to BREN. The service eduGAIN [4] is expected to be introduced within the European GEANT3 project and it will connect the national identification structures in a common space, where access to all resources in real time will be available. This can be complemented by management models based on Web 2.0 applications like OpenID [5]. In the area of identification services for the research and scientific sector, the activities of REFEDS (Research and Education FEDerations) should be used, as they aim at facilitation of access to resources on behalf of various national structures and users, exchange of users between national structures, etc. The national Grid center, to which several Grid structures from various universities and institutes from the Bulgarian Academy of Sciences are connected, participates in the European Grid Initiative as a partner in several European projects.

The National supercomputing center, which opened 3 years ago with an IBM BlueGene/P machine, entered successfully the European scientific structures and its strong national team participates in the PRACE project, working on a number of tasks in the area of genomic, nuclear physics, parallel computations, etc.

A wide discussion on “cloud computing” has been carried out recently. This has been probably the biggest change in the information and communication technologies paradigm in recent time, since the introduction of the timesharing mode in the 1960-ies. Cloud computing will allow mass use of computer resources. The aim to make savings through concentrating resources in big computing centers will create good conditions for a new business model. This model allows for independent optimization of computer infrastructure resources and such for its use. The result is a transformation of capital into operational expenditures.

The rapid technological development in the world derives as a main objective for the EU the preservation and further development of the competitiveness of the member countries’ economies until 2020. To reach this goal, and to be at top world level, a key element is the development and support of the European science by improving the electronic infrastructure.

The successful Bulgarian participation in European projects within FP6 and FP7 is a step in this direction. There is still a very insufficient level of financing for research – some 0.3-0.4 % of the GDP. Private companies do not invest in research, which results in the number of innovations. The declared priorities of the Bulgarian Academy of Sciences in the field of IT do not result yet in industrial applications.

Maximal economic efficiency is possible only with the participation of the consumers in management decisions. The expectations for transition from European to national funding suggests an active role of the consumer societies in drafting the strategies during important decision-making processes. A number of documents and programs, related to information technologies and their development, have been adopted in Bulgaria. Work is carried out on the preparation

of a common strategy on the construction of the research e-infrastructure.

Special attention should be devoted to the difference between the efficiency for access to electronic infrastructure between the European countries and the scientists in each state (Digital Divide). For this purpose, one must investigate what it means from a geographic point of view, what are the reasons for it and how this difference will affect the activities included in ERA[6]. On the basis of this research, the ways to overcome the difference and the proper financial instruments will be determined. There is no clear vision on this issue in our country. The Bulgarian scientists and in particular the young people in some areas of science, do not demonstrate a wish to tackle and solve complex problems. Very few teams can solve problems, requiring big computing power. This must be overcome as soon as possible with both the enthusiasm of those, who are making their first steps in the field of science, and of the veterans.

The advanced society of knowledge could have huge differences; one might expect the rapid economic and cultural development in some countries, while others might not only lag behind in economic terms but also develop some of the negative features of the human society. This in long terms could lead inevitably to a split in human society.

Bulgaria has enough human potential not only to participate successfully in the development of a proper European electronic infrastructure but also to take a well-deserved place amongst the nations that use the power of knowledge for prosperity.

References:

[1] http://www.geant.net/About_GEANT/pages/home.aspx
[2] http://www.egi.eu/
[3] http://www.prace-project.eu/
[4] http://www.edugain.org/
[5] http://openid.net/
[6] http://ec.europa.eu/research/era/index_en.htm

■

Digital Agenda in Hungary: an overview of IT policy documents

Balint Domolki

Dr. Domolki is mathematician by education and has spent all his active life in the Hungarian software industry. He has participated in various policy-making activities about the information society development in Hungary, including as leader of the technology assessment project Perspectives of Information Society Technologies (IT3).

Balint is Honorary president of the John von Neumann Computer Society and its representative to IT STAR.

There are long traditions of IT policy making in Hungary: back in 1995 a joint initiative of government officials with IT professionals started the development of a National IT Strategy.

A comprehensive document resulted in 1996, written by a fairly large group of experts and managed by a unique type of joint committee composed of representatives of government agencies and civil organizations.

In the forthcoming years several similar documents followed: each new government considered it necessary to produce some kind of strategy for answering the challenges of the information society (usually starting from scratch, making little use of the previous work). And unfortunately - this is also a "tradition", - most of the conclusions of such documents have "remained on paper", their realization in the interest of developing the IT field in Hungary has never been in a high position in the priority lists of Hungarian governments.

Besides strategic documents, some "technology foresight" types of activities have also been performed

- In 1997-2000 the first holistic foresight program of the CEE region was performed in Hungary: The *Technology Foresight Programme (TEP)* was based on panel activities and a large-scale Delphi survey, with a strong emphasis on socio-economic needs.
- In 2005-10 a technology assessment project (*Information Society Technology Perspectives – IT3*) was conducted, with the aim of producing a technology outlook for the Hungarian information society in a ten years perspective. Several deep studies about more than 30 different technology topics and application areas have been prepared and distributed among decision makers and the general public.

In mid-2010 a new government came into power. Several aspects of the ICT field – and also the whole research-development and innovation structure - have been reorganized with concentrating the government level management of most of the ICT issues - including the financing of all domestic and European research projects - in the hands of

a newly established *State Secretariat of Infocommunication* within the Ministry of National Development. Several strategy documents have been prepared and widely discussed in a national consultation process among specialists, civil organizations and also by citizens, NGOs, industry bodies, SMEs and multinational companies:

- *"New Szechenyi Plan"*, being an overall comprehensive economic development program providing an adequate response to every challenge the country is facing, and securing sustainable economic growth for the long term. ICT is among the four sectoral research and development priorities of the plan.
- *Digital Hungary Program*, outlining the contribution of ICT to the main goals defined by the government: competitiveness of businesses and the quality of life of the population. Development of the domestic ICT industry is an important element of the program, with special emphasis on the role of innovative SMEs.
- *Digital Renewal Action Program*, outlining the concrete actions for the realization of the goals mentioned above. This defines a detailed guideline for the infocommunication plans of the government for the period 2010-2014, with 83 proposed measures described in detail and divided into four action plans.

    1. ensuring equal opportunities to citizens
    2. increasing the competitiveness of businesses
    3. creating modern IT background in public administration
    4. and developing the IT infrastructure

All three documents are prepared on the basis of the Europe 2020 strategy and are fully aligned with the recommendations and objectives of the European Digital Agenda.

Another important source of strategic information has been the series of *National Technology Platforms* initiated in 2007-08 by the National Office of Research and Development . As a result of an open competition 21 consortia have received support to prepare Strategic Research Agendas and Implementation Studies outlining R&D priorities in a given technology area and organizing cooperation among its main stakeholders. Several of these platforms are working in close cooperation with the corresponding European Technology Platforms. Due to the increasing importance of ICT in all aspects of the economy, most of the platforms are somehow connected with ICT issues. Those who have stronger ICT relations, are the following:

- *ARTEMIS*: embedded systems
- *NESSI*: software and services
- *IMNTP*: micro/nano electronics
- *MM*: mobility and multimedia
- *HLT*: language and speech technology
- *eVITA*: assisted living
- *KIP*: creative industries

Strategic Research Agendas and *Implementation Studies* prepared by these platforms - with contributions from many leading experts - contain much valuable information about the future development trends of the given area, which can be efficiently used in defining the national policies for the development of ICT and their application in Hungary.

ICT-related National Platforms have recently started an organized cooperation to support each other in the implementation of their research plans and to enhance their effect to the whole national ICT field.

Several research organizations have also developed valuable strategic documents, analyzing the development trends of several ICT areas and defining research priorities:

- *Budapest University of Technology and Economics (BME)*, on the occasion of receiving the title of Research University in 2010, has developed a Strategy for Research and Innovation. One of the priority areas here is defined as "*intelligent environment and e-technologies*", covering many interesting areas of ICT research conducted at the University. Concrete R&D tasks are defined and progress is constantly monitored by a panel of outside experts;
- several other universities, like *University of Szeged* and *Pázmány Péter Catholic University* have also prepared papers describing their research strategies;
- *The Hungarian Academy of Sciences (HAS)* started in 2008 a comprehensive program to develop strategic studies in eight important areas of the Hungarian society and economy. Information Technology is among these areas and a strategic paper has been completed in early 2011. In this study - prepared with the participation of many leading academicians - an overview is given about the development trends of the ICT field, European and national strategic directions are analyzed and on the basis of a rather detailed survey of ongoing domestic R&D activities some recommendations are given, outlining the opinion of HAS in some issues of ICT policy in the country. This includes a list of suggested priority areas for ICT research, such as

    1. architecture and systems
    2. software evolution
    3. Hungarian language and speech technology
    4. data mining
    5. complex production control systems
    6. infobionics
    7. social implications of IT

Recommendations also include statements on the role of the Academy in several ICT issues, like research infrastructure development, education, more active participation in European research activities and also the continuation of systematic monitoring of technology development trends in order to keep the strategy updated.

Civil organizations, like the *John von Neumann Computer Society (JvNCS)* have been participating actively in most of the strategic activities described above both by providing services for the public in some important areas (like *digital literacy* in case of JvNCS) and also by contributing to the preparation and discussion of strategic documents either by the Society itself or separately by its members.

■

2011 Report on R&D in ICT in the European Union

Marc Bogdanowicz

Marc is Principal Scientific Officer at the Institute for Prospective Technological Studies (IPTS), Joint Research Centre (JRC), European Commission and is currently managing the 'Information Society and Growth' research activities of the IS Unit.

This is the fourth report of a series published annually.[1] This year's edition covers a period of ICT sector growth until the recent financial and economic crisis. The multi-annual analysis allows us to confirm the consistency of the data over time and offers a privileged view of the major ICT R&D trends across 2002 – 2008.

The report combines three complementary perspectives: national statistics, company data, and technology-based indicators such as patent data. It relies on the latest available official statistics delivered by Member States, Eurostat and the OECD.[2] The current analysis includes data, which the JRC-IPTS[3] will publish in June in its new annual "Report on R&D in ICT in the European Union". It is well acknowledged in the European Commission's evidence-based policy-making activity and provides an exhaustive analysis of EU R&D investments in the ICT industry sector [4] until 2008.[5]

Most important observations, described in more details in the report, are the following:

- The structure of EU ICT sector is strongly oriented towards ICT services, with a still rising ICT services vs. ICT manufacturing share, helped in part by declining relative prices of ICT manufactured products.
- The 2008-2009 financial crisis had a strong impact on the ICT sector worldwide. Negative effects appeared however to have waned by the end of 2010, but recovery dynamics differed across ICT industries.
- Although they make substantial and increasing R&D investments, European ICT companies, considered as an aggregate, have been, and are still, lagging behind main competitors in this regard. This lag seems to be largely due to the smaller number of large European ICT companies, rather than to a lower R&D intensity[6] of individual EU companies: EU companies show for example similar R&D intensities per ICT sub-sector to those of their US competitors.
- The number of ICT patent priority applications worldwide by inventors from the EU was in 2007 significantly below those by inventors from Japan, Korea, China, or the US. In 2007, applications by inventors from Germany, France and the UK accounted together for 80% of all applications by EU-based inventors with Germany-based inventors alone generating half the total ICT applications for the EU.
- Although ICT R&D is still predominantly local, the EU and the US are important locations for foreign ICT R&D investment. International cooperation in R&D is however evolving from a dominant EU-US relation to global networking. Since the early 2000s, the share of foreign ICT inventions owned by US firms and invented in Asia has increased. US firms own significantly more ICT foreign inventions than EU firms do, and US firms, as an aggregate, appear therefore to be better able than EU firms to take advantage of the process of internationalisation of ICT inventive activity.

The detailed and comprehensive analyses contained in this report are particularly relevant for policy-makers, since:

- The ICT industry and ICT-enabled innovation in non-ICT industries and services make an increasingly important contribution to the economic growth of advanced economies. The ICT sector was highlighted in the EU Lisbon Objectives, and has retained its prominence in the Europe 2020 Strategy.[7] The *Digital Agenda for Europe*, one of seven 'flagship initiatives' under the Europe 2020 strategy aims to "contribute significantly to the EU's economic growth and to spread the benefits of the digital era to all sections of society".
- The ICT sector is a significant contributor to the ambition of achieving the target of investing 3% of GDP in R&D in the EU – a target, which is reiterated in the Europe 2020 Strategy.

These characteristics have provided the rationale for the research work and the ambition to gain a deeper understanding of the dynamics of research in the ICT industrial sector, which in turn can provide important policy

1 This and previous reports are available at http://is.jrc.ec.europa.eu/pages/ISG/PREDICT.html

2 Namely the following sources:
- For ICT sector data: Structural Business Statistics SBS, National Accounts, Price and GDP data (Eurostat)
- For R&D data: ANBERD 2009 (OECD), R&D Statistics (Eurostat), EU industrial R&D Investment Scoreboard (JRC-IPTS)
- For supporting data: EUKLEMS database (Groeningen University), PATSTAT (European Patent Office), Amadeus database (Bureau Van Dijck) as well as several other external or in-house resources.

3 The Institute for Prospective Technological Studies (IPTS) is one of the seven research institutes of the European Commission's Joint Research Centre (JRC).

4 The ICT sector includes five NACE Rev.1.2 classes, also called sub-sectors:
- Three ICT manufacturing sub-sectors (IT equipment; Components, Telecom and Multimedia Equipment; and Measurement Instruments),
- Two ICT services sub-sectors (Telecom Services, and Computer Services and Software). Where indicated, the Telecom Services sub-sector also includes Postal Services.

5 For most of the data, 2008 figures were the latest available in autumn 2010 when the report was prepared; for patent data, latest year available was 2007. The analysis of impact of the financial crisis on the ICT sector is based on 2010 data.

6 Company R&D intensity is measured by the ratio of R&D investment over sales.

7 http://ec.europa.eu/eu2020/

insights and options.

For the first time this year the annual PREDICT report is complemented by a series of reports presenting detailed analyses of some of the themes included, namely: R&D investment by top ICT R&D companies worldwide, performance of ICT R&D analysed through ICT patenting, and internationalisation of ICT R&D.

Illustration of report findings:

The EU ICT sector has a smaller weight than in other major economies

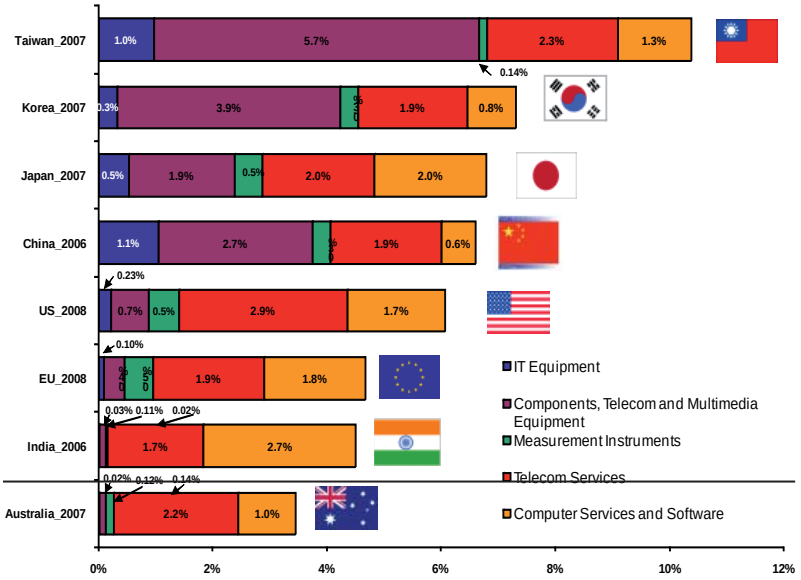
With a value added of 4.6% of GDP, the relative economic weight of the ICT sector in the EU was significantly smaller in 2008 than it was in the US (6%), China (6.6 %[8]), Japan (6.9%), Korea (7.2%) and Taiwan (10.5%), as is shown in Figure 1.

Furthermore, it is striking that the structure of the ICT sector is fairly similar in the EU and the US, but very different from what it is in Japan, Korea or Taiwan. The Asian countries have a comparatively much bigger ICT manufacturing sector. Japan's share of ICT manufacturing relative to GDP is four times bigger than the EU's. China, Korea and Taiwan all have a share in GDP of ICT manufacturing higher than Japan's.

Within the EU, in 2008 the four largest economies (Germany, France, the UK and Italy) produced together 2/3 of the EU ICT sector VA, while Finland, Ireland, Hungary and Sweden, four countries with an important weight of the ICT sector in their economy, produced together less than 7% of the EU ICT sector VA, i.e., roughly the same contribution as Spain alone.

8 In 2006, most recent year available

Figure 1: Economic weight of the ICT Sector, % of sector's value added in GDP (2008 or latest data available)



Source: JRC-IPTS based on data from EUROSTAT, OECD, EU KLEMS, IPTS ASIA STUDY ■

UNESCO ICT in Education Program

Fengchun Miao

Dr. Fengchun Miao is Program Specialist of ICT in Education at the Sector for Policy Advice and ICT(PAD), Education Sector at UNESCO's Headquarters in Paris. His experience includes diagnostic study and strategic advice, policy-making and standard development, teacher training on ICT-pedagogy integration and online facilitation for professional development, especially related to the use of ICTs in teaching.

Before joining UNESCO Bangkok, he was Director of the National Research Center for Computer Education, MOE, China. In that capacity, he was responsible for the development of ICT in education policy and ICT standards.

As the leading UN agency for e-Learning, UNESCO has committed itself to assisting its Member States to harness the potential of ICT in achieving quality Education For All. The Organization takes a holistic and comprehensive approach to the delivery of technical assistance through the joint work of its technical sectors.

Approach to the Use of ICT in Education

UNESCO's Education Sector defines the focus areas and implements its main ICT in education activities based on its integrated understanding of the challenges the education systems of its Member States are facing and ICT's potential in solving educational issues and bringing more pos-

sibilities to education. UNESCO recognizes that ICT has a potential in contributing to the universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration. UNESCO's Education Sector suggests that ICT in Education Program should be a comprehensive approach to innovating education systems, methods, and management through ICT, including policies, strategies, and practices in harnessing the following potentials of ICT:

- ICTs as educational delivery media: Enabling equal access to basic educational resources and life long learning opportunities, and restructuring education system
- ICTs as pedagogy enabling tools: Diversifying and transforming teaching-learning methods and practices in order to improve the learning outcomes of traditional curriculum domains and enable new learning outcomes that are more relevant to the world of work and human development in a new era.
- iCTs as emerging subject areas: Equipping all citizens with information literacy and basic ICT skills that are needed in the 21st century, and providing courses on advanced ICT knowledge and skills.
- ICTs as cost-effective educational management systems: Enhancing education efficiency, effectiveness, and productivity through the education management information system (EMIS)
- ICTs as community mediating tools: Fostering communities of practices among teachers, educational managers, parents, students and other stakeholders of education to groom innovative practices and adapt to rapid changes in society and the local context.

Focus Areas and Main ICT in Education Activities

UNESCO's Education Sector pivots its ICT in Education Program around policy, access to basic education and life long learning opportunities, teacher education, e-learning, open access to knowledge, and EMIS.

Policy: UNESCO conducts analysis and case studies on ICT in education policies and matter plans. The latest publication is entitled *Transforming Education: The Power of ICT Policies*. In cooperation with the World Bank, UNESCO has developed an ICT in Education Toolkit for policy makers, and is keen to provide technical assistance to Member States in developing national ICT in Education Master Plans. The UNESCO Institute for Statistics has developed a set of ICT in Education Indicators to help its Member States monitor the progress of adopting ICT in education and to evaluate the impact of ICT on education.

Life Long Learning Opportunities: UNESCO has provided guidance and convened conferences on how to use ICTs (satellites, DVD, radio, mobile phones, etc.) to provide literacy education and basic education to the children that are excluded from schools, how to build community multimedia centers (CMCs) to provide trainings on life skills and working skills, how to use ICT to improve the quality of vocational education and higher education, how to exploit open and distance learning (ODL) to broaden the access to and to promote the quality of higher education.

Teacher Education: UNESCO's Education Sector and the Sector for Communication and Information (CI) have jointly developed an ICT Competency Framework for Teachers (ICT-CFT) to provide guidelines for planning teacher education programs and training offerings that will prepare pre-service teachers or facilitate in-service teachers' professional development on effective ICT- pedagogy integration. The Education Sector, through its field offices around the world, has developed training programs on ICT-pedagogy integration and help build the institutional capacities of teacher training colleagues or institutions in developing and providing training on ICT in education.

E-Learning: Through the UNESCO King Hamad Bin Isa Al Khalifa Prize for the Use of ICTs in Education and its wide range of case studies, UNESCO is promoting and disseminating the lessons learned, from and to the globe, on innovative practices in the area of ICT in education. To provide guidance on the quality control over the increasingly booming e-learning activities, UNESCO is cooperating with EADTU (the European Association of Distance Teaching Universities) on quality assurance in e-Learning.

Open Access to Knowledge: UNESCO has been active in promoting Open Educational Resources (OER), free and open-source software (FOSS), and open access to scientific knowledge in particular. The UNESCO Education Sector focuses on promoting the introduction of OER in teacher education, HIV and AIDS and Literacy and education in post-conflict and post-disaster situations.

Education Management Information System (EMIS): UNESCO has developed and released OpenEMIS, an open-source software, to facilitate the setting up of an Education Management Information System adapted to the needs of the users at central, regional and local levels.

Mobile learning: With sponsorship from Nokia, UNESCO's Education Sector is pilot-testing the use of mobile phones for education, with specific focus on the use of mobile phones for literacy education, for teachers development, and on the development of M-Learning Policy Guidelines in the beginning.

How to follow up on UNESCO ICT in Education Activities

UNESCO's ICT in Education website (www.unesco.org/new/en/unesco/themes/icts) has been launched recently as a gateway to all UNESCO ICT in Education materials and project activities. Twitter (twitter.com/#!/UNESCOICTs) and Facebook (www.facebook.com/UNESCOICTinEducation) have been set up to help follow-up on UNESCO's ICT in Education activities and join discussion organized by UNESCO.

■

Online courses for IT Teachers

Pierfranco Ravotto

Pierfranco is a member of the Board of AICA's Milan section and of the SIe-L board, Italian Association for e-Learning.

He was a teacher in Secondary school until 2007 and has coordinated many European projects in the field of eLearning and the use of ICT and web 2.0 tools in schools. He is co-director of the Bricks review - www.rivistabricks.it.

The labour market in many European countries requires more Informatics professionals who should be better qualified in terms of competences, Which is a main challenge for schools.

The European two-year project *Sloop2desc*[1], co-financed by the European Commission within the Lifelong Learning Programme-Leonardo da Vinci (2009), intends to contribute to such a goal acting on the teaching competences of IT and related subjects professors ho are to prepare the IT professionals, or at least expert users, of the future.

Sloop2desc focuses on teachers training on the following matters:

- competence-based learning,
- use of the Internet and Web 2.0 tools to integrate face-to-face and online learning.

Sloop2desc has planned, implemented and delivered an eLearning course based on collaboration in a "virtual classroom": tutors and trainees continuously interact and cooperate in the Moodle platform and in other web 2.0 environments like Delicious, GoogleDoc, Wikis, Skype, …

The *Sloop2desc* course, *"To design and develop online courses based on competence-oriented education"* lasts 16 weeks and is divided into 5 modules:

1. Using Moodle as a trainee and as a teacher.
2. Being an online tutor and using web 2.0 tools.
3. Using and developing open educational resources for an eLearning environment.
4. Analysing European frameworks: EQF, e-CF and EUCIP.
5. Developing and sharing open educational resources based on EUCIP standard.

Module 1 is dedicated to Moodle learning environment which is used in the course, and which will be subsequently used by the trainees (teachers) with their students. Trainees are required to train themselves adding resources (written texts, web pages, links, etc) and to carry-out activities (forums, interactive lessons, exercises, quizzes, wikis, SCORM objects, questionnaires, etc.) in a "trial run" course and to debate in dedicated forums on problems met and solutions found.

Module 2 focuses on online tutoring and the use of Web 2.0 tools for online teaching and learning. The trainees are required to co-operate in analyzing some Web 2.0 tools and to prepare a description for their colleagues using googledoc and a wiki.

Module 3 is based on individual exercises concerning the acquisition of technical competences for the production of learning resources and on a debate on the idea of sharing open educational resources (OER). By the term "open" we mean three aspects:

- Accessibility: the resource must be easily traceable in a public repository (the resources developed within SLOOP and Sloop2desc are available in FreeLOms[2]).
- Modifiability: access to sources must be granted, where necessary.
- Permissions: resources must be released either in the "public domain" or under a licence like *Creative Commons Attribution-Share alike*, which guarantees freedom of use, distribution and modification.

Module 4 focuses on competences, in particular the following documents are analysed and discussed:

- EQF, *European Qualification Framework*: it is the European document that aims to make different national qualifications more readable across Europe through a common definition of levels. It provides the definition of competence as *"the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development"*.
- e-CF, *European e-Competence Framework*: it is a reference framework for ICT drawn up by CEN. Up to now Sloop2desc courses have been the main, maybe the only, occasion for the teachers to get familiar with e-CF).
- EUCIP, *European Certification of Informatics Professionals.*

Module 5 is dedicated to the planning and implementation of OER to be used with the students. The participants are asked to form groups on the basis of their teaching subjects and classes, and to choose items from the EUCIP Syllabus (or from the ECDL ones, if their students are not supposed to become "informatics" but only "users" of the computer)

1 It is a TOI (Transfer of Innovation) project; the acronym recalls the one of the previous project, SLOOP from *Sharing Learning Objects in an Open Perspective*, with the "2" which indicates a second phase of SLOOP but also sounds like 'to': 2desc means *TO Develop European Skills and Competences*. The partnership is made up of institutions in **Italy**, CNR-ITD (promoter), AICA, Metid-Politecnico of Milan, ITSOS "Marie Curie" of Cernusco sul Naviglio, IIS "Danilo Dolci" of Palermo and the Consortium "Med Europe Export", **Slovenia**, S. S. Informatika and Ljubljana University, **Romania**, University of Galati, and **Ireland**, DEIS, Department of the Cork Institute of Technology.

2 FreeLOms, *Free Learning Objects management system*, is the OER repository produced in a first version during the SLOOP project and now up-graded in the Sloop2desc project (http://freeloms2.pa.itd.cnr.it/xmlui).

and to produce:

- **single resources**, *learning objects:* lessons with texts and images, or audio or audio-videos, simulations, tests, …
- **whole courses: learning paths designed within Moodle containing:**
  - a detailed plan of objectives, activities and expected outcomes,
  - learning resources purposely developed for the course and/or found in the Internet,
  - cooperative activities and discussion forums;
  - tests and self-evaluation questionnaires.

About 600 teachers, mostly Italians, but also Slovenians and Romanians, not only informatics oriented[3], have taken part to these courses developing and sharing OERs (this process is still on-going)

The course – in Italian, English, Slovenian and Romanian – after a due revision phase on the basis of the feedback received – will be made available in freeLOms; in this way other teachers will be able freely to download, use and modify them in view of training other teachers on the topics of "competences" and "blended learning", namely integration between face-to-face and online learning.

■

3 A group of English teachers have worked on the Common European Framework for Languages, another on the 8 European Key-competences, while the Romanian teachers have developed their resources within a framework of Maritime competences.

Joke of the Issue

View from Bernardin hotel

The delegates of Serbia and Slovakia sharing their impressions of the stunning views from their hotel rooms in Portoroz:

Mr. Dukic - *"When I look left I see Croatia, right Italy and down Slovenia".*

Mr. Privara - *"Impressive indeed! At home I just see Slovakia".* ■

Member Society News

Bulgaria

A Jubilee session on the occasion of the 50th Anniversary of the 1st Computing Center in Bulgaria was held on 26 May 2011 at the Bulgarian Academy of Science. The Computing Center is based at the Institute of Mathematics and Informatics, the main organizer of the event, with the Institute for ICT and the Faculty of Mathematics and Informatics – Sofia University, as co-organizers.

Hungary

The European Software Engineering Conference and ACM SIGSOFT Foundations of Software Engineering will be held on 5 – 7 September 2011 in Szeged. Check http://2011.esec-fse.org/ for the details.

Lithuania

The Lithuanian Computer Society (LIKS) will organize its biannual umbrella event known as "Computer Days" on 23 and 24 September 2011 in Klaipeda. Check www.liks.lt/kodi_en for the details.

Serbia

JISA will hold its 15th Annual Congress in Herceg Novi, Montenegro on 15 and16 June 2011. Check the JISA site www.jisa.rs for further information.

■

Forthcoming IT STAR Events

6th IT STAR WS on IT Security

IT STAR's conference on IT Security will be hosted by the Slovak Society for Computer Science (SSCS) in Bratislava, in late March 2012. Members of the Program and Organizing Committee will meet soon to review the arrangements. A Call for contributions and participation will be issues in early September.

Talent in Informatics

As reported earlier, the 24th International Olympiad in Informatics will be held in Lombardy (Brescia and Sirmione on Lake Garda) from 22 to 27 September 2012. The organizers – AICA and the Italian ministry of Education, supported by IT STAR, plan an international conference on 25 September in Sirmione. Leading individuals and organizations with competences in the field would participate and share their experience related to identifying and raising talented young individuals in the informatics field. UNESCO and the EC are invited to participate and support this endeavor.

7th IT STAR WS eBusiness II

Following the successful organization of the first IT STAR conference on eBusiness on 12 November 2010 in Zagreb, Croatia (see Vol. 8, no.4, Winter 2010/11 of the NL) IT STAR will hold a second edition of the conference during the 24th IOI in Italy. Tentative dates – 24 or 26 September 2012.

Other Events of Interest

UNESCO's International Workshop QED on "Re-designing Institutional Policies and Practices to Enhance the Quality of Education through Innovative Use of Digital Technologies" will be held on 14-16 June 2011 in Sofia, Bulgaria.

Conference topics:

- Policy-Making to Move Education into the Digital Age
- Education 2.0: Policies and Best Practices
- Upbringing as Part of the Education in the Digital Age – The Role of the Teacher
- Open Educational Resources for Improving Quality of Education
- Multi-cultural and Multi-lingual Issues of Global Education
- Re-defining the Quality of School and Teacher Education Skills of 21st Century
- The 21st Century Pedagogy
- 21st Century Teacher Characteristics: Innovative Teacher
- Redefining Teacher Education for Digital-Age Learners
- Lifelong Learning and Informal Learning Paradigms for Teacher Education
- Competence Based Teacher Education
- Quality of the ICT-based Learning Environments
- Building Collaborative Communities in Education
- Regional Dimensions of the ICT-driven Educational Reform
- Mobile Learning

Further information is available at http://qed.unibit.bg.

The European Conference "Innovations in the Environmental Sector" (INES) will take place in Brussels, Belgium on 21 September 2011.

The 4th conference INES 2011 will continue the deliberations of the first three related European conferences - in Vilnius (Lithuania), Budapest (Hungary) and the third in Bucharest (Romania) last September 2010.

Conference topics:

- Competence models for the environmental sector
- E-Learning for the environmental sector
- Social communities for the environmental sector
- Competence modeling in human resource development
- E-Learning for vocational education and training
- Social communities for vocational education and training
- Learning outcomes and competences orientation
- Job profiles and working places defined by competences
- Standardization of environmental competence models
- Implementation of E-Learning and social communities
- Harmonization of competence models

Further information about the 4th INES conference is available at http://www.learning-innovations.eu. ■

Greetings from Piran

Dorothy Hayden

Everyone is fascinated by Venice but I wonder if many really grasp the breath of the Venetian republic, which had laid a historic mark in the Adriatic … and beyond.

The dotted towns of the Adriatic coastline offer a good example of Venice's might and beauty: Piran is an attestation.

I've always wanted to come here and on the occasion of IT STAR's 10th Anniversary in April 2011 I took the possibility, thanks to Mr. Schlamberger and the Slovenian Informatics Society.

After a 15 minutes walk along the sea promenade from Hotel Bernardin in Portoroz I reached the center of Piran, the Tartini Square, named after the famous violinist and composer Giuseppe Tartini, born here. Tartini's bronze bigger-than-life statue, commissioned to the Venetian sculptor Antonio dal Zotto in 1892 to mark 200 years of the composer's birth, dominates the square. This is the bustling center of a small town of some 4,500 inhabitants. The lovely harbor leads the sea into the town, which has its heritage of a charming medieval site with clustered narrow streets displaying Gothic and Baroque traits, and architecture strongly influenced by Venice.

The belfry of St. George's church, the patron saint of Piran, inspired by St. Mark's campanile in Venice, overlooks the city and provides stunning views that stretch across the water to Croatia and Italy. The town is a member of the European Association of Walled Cities and one should not miss the opportunity to enjoy wonderful views that open from its emblematic fortification walls.

The sea promenade encircles the Piran peninsula and in the town it is flanked by some of the best seafood restaurants in the region. One of the specialties here is the "Piranksi Branzin", sea bass coming from the farms around Piran. A good choice for wining and dining, I was told, are the Pavel & Pavel 2 restaurants, but any choice of restaurant along the promenade is good for a "Gourmet & Culture" experience.

Piran boasts of a "technological first" – in 1909, then within the Austro-Hungarian Empire, Piran hosted the first trolleybus line in the Balkans, which ran along the coast to Portoroz and Lucija. 3 years later it was replaced by a tram along the same route, operating until 1953.

As Peter Bossman, the mayor of Piran, a Ghanaian who settled in Slovenia in the late 70-ies, will tell you, Piran thrives on tourism. With its cultural ancestry, marina, numerous open-air events, and its proximity to the "Port of Roses", it is a preferred international tourist destination that has much to offer.

Piran is the seat of the recently established Euro-Mediterranean University. ■

EU27 Internet Access and Use

Source: EUROSTAT News Release on 2010 Data
http://europa.eu/rapid/pressReleasesAction.do?reference=STAT/10/193&format=HTML&aged=0&language=EN&guiLanguage=en

70% of the EU27 households had access to the Internet in the first quarter of 2010, compared with 49% in the first quarter of 2006. The share of households with broadband Internet connections doubled, to reach 61% in 2010 compared with 30% in 2006. The level of Internet access increased in all Member States between 2006 and 2010, most notably in Romania where it tripled, and in Bulgaria, the Czech Republic, Greece, Hungary and Slovakia, where it doubled or almost doubled. In 2010, the highest shares of Internet access were recorded in the Netherlands (91%), Luxembourg (90%), Sweden (88%) and Denmark (86%), and the lowest in Bulgaria (33%), Romania (42%) and Greece (46%).

The proportion of households with a broadband connection also rose in every Member State in 2010 compared with 2006. Sweden (83%) registered the highest share of broadband connections in 2010, followed by Denmark (80%), Finland (76%) and Germany (75%), while Romania (23%), Bulgaria (26%) and Greece (41%) had the lowest.

In 2010, the level of Internet access for households with children in the EU27 was significantly higher than for households without children (84% compared with 65%). This was the case in all Member States. The shares for households with children ranged from 50% in Romania to 99% in the Netherlands and Finland. In twelve Member States the share was 90% or more for households with children.

In the EU27, around 90% of all Internet users sent e-mails during the first quarter of 2010, without any significant difference between age groups. On the other hand, there was a very significant difference in the use of Internet for posting messages to chat sites, blogs and social networks by age. Four fifths of Internet users aged 16-24 in the EU27 used the Internet for this purpose during 2010, compared with two fifths of those aged 25-54 and less than one fifth of those aged 55-74. Use of this form of communication was particularly high for all age groups in Poland, Portugal and Lithuania.

There was a less pronounced difference between age groups in the use of internet phone and video calls, with one third of those aged 16-24, one quarter of those aged 25-54 and one fifth of those aged 55-74 in the EU27 using this form of communication during 2010. Use of the Internet for phone and video calls was particularly high for all age groups in Bulgaria, Latvia, Lithuania and Slovakia. ■

Use of Internet for communication, 2010 (% of internet users) in the IT STAR Region

	E-mail			Posting messages to chat sites, blogs, social networking			Internet phone/video calls		
	Aged 16-24	Aged 25-54	Aged 55-74	Aged 16-24	Aged 25-54	Aged 55-74	Aged 16-24	Aged 25-54	Aged 55-74
EU27	**91**	**89**	**86**	**80**	**42**	**18**	**35**	**26**	**20**
Austria	92	89	87	73	32	14	26	22	20
Bulgaria	86	80	73	73	52	32	73	60	49
Croatia	78	73	60	74	31	13	33	25	17
Cyprus	86	77	73	76	37	14	59	37	35
Czech Rep.	94	90	83	76	33	13	58	38	29
Greece	75	73	62	72	40	18	32	18	13
Hungary	94	93	92	79	55	37	40	37	37
Italy	84	83	79	73	38	15	34	28	22
Lithuania	93	79	65	87	63	42	76	61	44
Poland	89	80	70	94	67	45	36	33	35
Romania	91	85	78	61	44	23	45	40	31
Slovakia	94	92	86	86	46	18	61	52	49
Slovenia	94	85	78	90	46	29	28	19	19

SNAPSHOT

REGIONAL ICT ASSOCIATION IN CENTRAL, EASTERN & SOUTHERN EUROPE

Type of organization

Regional non-governmental and non-profit professional association in the ICT field.

Date and place of establishment

18 April **2001**, Portoroz, Slovenia

Membership

Countries represented (*see next page for societies*), year of accession, representatives

- Austria (2001) V. Risak, G. Kotsis, E. Mühlvenzl
- Bulgaria (2003) K. Boyanov
- Croatia (2002) M. Frkovic, M. Glasenhart
- Cyprus (2009) P. Masouras
- Czech Republic (2001) O. Stepankova, J. Stuller
- Greece (2003) S. Katsikas
- Hungary (2001) B. Domolki
- Italy (2001) G. Occhini
- Lithuania (2003) E. Telesius
- Macedonia (2003) P. Indovski
- Poland (2007) M. Holynski
- Romania (2003) V. Baltac
- Serbia (2003) G. Dukic
- Slovakia (2001) I. Privara, B. Rovan
- Slovenia (2001) N. Schlamberger

Statutes

IT STAR Charter http://www.starbus.org/download/charter.pdf adopted on 23 October 2004 by the IT STAR Business Meeting in Prague, the Czech Republic.

Mission

"To be the leading regional information and communi-cation technology organization in Central, Eastern and Southern Europe which promotes, assists and increases the activities of its members and encourages and pro-motes regional and international cooperation for the benefit of its constituency, the region and the interna-tional ICT community."

Governance

IT STAR is governed according to the letter of its Charter by the Business Meeting of MS representatives:

2011 Portoroz, **Slovenia** (April)
2010 Zagreb, **Croatia** (November)
2009 Rome, **Italy** (November)
2008 Godollo, **Hungary** (November)
2007 Genzano di Roma, **Italy** (May)
Timisoara, **Romania** (October)
2006 Ljubljana, **Slovenia** (May)
Bratislava, **Slovakia** (November)
2005 Herceg Novi, **Serbia & Montenegro** (June)
Vienna, **Austria** (November)
2004 Chioggia, **Italy** (May)
Prague, **the Czech Republic** (October)
2003 Opatija, **Croatia** (June)
Budapest, **Hungary** (October)
2002 Portoroz, **Slovenia** (April)
Bratislava, **Slovakia** (November)
2001 Portoroz, **Slovenia** (April)
Como, **Italy** (September)

Coordinators

2010 – Igor Privara
2006 – 2010 Giulio Occhini
2003 – 2006 Niko Schlamberger
2001 – 2003 Plamen Nedkov
(currently Chief Executive)

Major Activities

- 5th IT STAR WS and publication on Electronic Business - http://starbus.org/ws5/ws5.htm
- 4th IT STAR WS and publication on Skills Education and Certification - http://starbus.org/ws4/ws4.htm
- 3rd IT STAR WS and publication on National Information Society Experiences – NISE 08 http://www.starbus.org/ws3/ws3.htm
- 2nd IT STAR WS and publication on Universities and the ICT Industry
- http://www.starbus.org/r_d_ws2/r_d_ws2.htm
- 1st IT STAR WS and publication on R&D in ICT http://www.starbus.org/r_d_ws1/r_d_ws1.htm
- IT Professional Pool Database (in progress)
- Workshop and publication on National Experiences related to the EU's 5th and 6th FP http://www.starbus.org/download/supplement.pdf
- Joint IT STAR – FISTERA Workshop on ICT and the Eastern European Dimension http://fistera.jrc.es/pages/roadshows/prague%2004/FINAL%20REPOR-Trevised.pdf
- Support to Member Society initiatives and events

Periodicals

The IT STAR Newsletter (nl.starbus.org) published quarterly.

Web-site

www.itstar.eu ■

IT STAR Member Societies

Austrian Computer Society – OCG
Dampfschiffstrasse 4, 8. – 9. floor,
A-1030 VIENNA, Austria
Tel. +43 1 512 0235 Fax +43 1 512 02359
e-mail: ocg@ocg.at
www.ocg.at

Bulgarian Academy of Sciences – BAS
Institute for Parallel Processing
Acad.G.Bonchev str.Bl.25A
SOFIA 1113, Bulgaria
Tel +359 2 8708494 Fax +359 2 8707273
e-mail: boyanov@acad.bg
www.bas.bg

Croatian IT Association– CITA
Ilica 191 E/II,
10000 ZAGREB, Croatia
Tel. +385 1 2222 722 Fax +385 1 2222 723
e-mail: hiz@hiz.hr
www.hiz.hr

The Cyprus Computer Society – CCS
P.O.Box 27038
1641 NICOSIA, Cyprus
Tel. +357 22460680 Fax +357 22767349
e-mail: info@ccs.org.cy
www.ccs.org.cy

Czech Society for Cybernetics and Informatics – CSKI
Pod vodarenskou vezi 2,
CZ-182 07 PRAGUE 8 – Liben
Czech Republic
Tel. +420 266 053 901 Fax +420 286 585 789
e-mail: cski@utia.cas.cz
www.cski.cz

Greek Computer Society – GCS
Thessaloniki & Chandri 1, Moshato
GR-18346 ATHENS, Greece
Tel. +30 210 480 2886 Fax +30 210 480 2889
e-mail: epy@epy.gr
www.epy.gr

John v. Neumann Computer Society – NJSZT
P.O. Box 210,
Bathori u. 16
H-1364 BUDAPEST, Hungary
Tel.+36 1 472 2730 Fax +36 1 472 2739
e-mail: titkarsag@njszt.hu
www.njszt.hu

Associazione Italiana per l' Informatica ed il Calcolo Automatico – AICA
Piazzale R. Morandi, 2
I-20121 MILAN, Italy
Tel. +39 02 760 14082 Fax +39 02 760 15717
e-mail: g.occhini@aicanet.it
www.aicanet.it

Lithuanian Computer Society – LIKS
Geležinio Vilko g. 12-113
LT-01112 VILNIUS, Lithuania
Tel. +370 2 62 05 36
e-mail: liks@liks.lt
www.liks.lt

Macedonian Association for Information Technology – MASIT
Dimitrie Cupovski 13
1000 SKOPJE, Macedonia
e-mail: indovski.p@gord.com.mk
www.masit.org.mk

Polish Information Processing Society
ul. Puławska 39/4
02-508 WARSZAWA, Poland
Tel./Fax +48 22 838 47 05
e-mail: marek.holynski@gmail.com
www.pti.org.pl

Asociatia pentru Tehnologia Informatiei si Comunicatii – ATIC
Calea Floreasca Nr. 167, Sectorul 1
014459 BUCAREST, Romania
Tel +402 1 233 1846 Fax +402 1 233 1877
e-mail: info@atic.org.ro
www.atic.org.ro

JISA Union of ICT Societies
Zmaj Jovina 4
11000 BELGRADE, Serbia
Tel.+ 381 11 2620374, 2632996Fax + 381 11 2626576
e- mail: dukic@jisa.rs
www.jisa.rs

Slovak Society for Computer Science – SSCS
MFF UK, Mlynska dolina
SK-842 48 BRATISLAVA, Slovak Rep.
Tel. +421 2 65426635 Fax +421 2 65427041
e-mail: SSCS@dcs.fmph.uniba.sk
www.informatika.sk

Slovenian Society INFORMATIKA – SSI
Vozarski pot 12
SLO-1000 LJUBLJANA, Slovenia
Tel. +386 123 40836 Fax +386 123 40860
e-mail: info@drustvo-informatika.si
www.drustvo-informatika.si