



## Catch the Wind

The Summer issue will take you deeper into the eBusiness and eLeadership debate that was kicked-off in our Spring issue with:

- The Digital Innovation Leader Profile by Roberto Bellini, Giulio Occhini and Paolo Schgör (AICA)
- Creating a Large Talent Pool of ICT Professionals and e-Leaders by André Richier (DG ENTR), Tobias Hüsing and Werner B. Korte (empirica GmbH)
- The Bari Takeaway: An Overview of the IT STAR WS on eBusiness by Plamen Nedkov (IT STAR), and
- The Bari Declaration, as adopted by the conference participants .

The President of SSI, Niko Schlamberger, presents the debate of the recent 20<sup>th</sup> Annual Conference of his Society, and Dorothy Hayden takes us on her MultiCulti Tour to Bari.

Take the Journey,

*The Editor*

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## The Bari Takeaway

7<sup>th</sup> IT STAR WS on Electronic Business, 3 May 2013

Plamen Nedkov



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*Academy of Sciences, executive director of IFIP, delegate to many sessions of UNESCO's General Conference and elected representative to the NGO-UNESCO Liaison Committee. He is member of the Steering committee of CEN's WS on ICT Skills.*

At the invitation of AICA – the Italian ICT association, IT STAR confirmed in March 2012 its intention to hold the 7<sup>th</sup> IT STAR Workshop on Electronic Business in 2013 in Italy as a follow-up to the successful conference under the same topic, held in Zagreb, Croatia in November 2010.

A Program and Organizing Committee with representatives of the 3 organizers – AICA, Politecnico di Bari and IT STAR - was established in November 2012, and it was decided to hold the conference on 3 May 2013 in Bari.

Among the reasons for selecting Bari as the conference venue was the fact that the Puglia chapter of AICA is one of the most active nationwide, an attestation of which is the recent election of the Chapter's president as AICA's

*cont. on p. 3*

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*Ex officio:* IT STAR MS representatives (see page 1)

## 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

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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](mailto:info@starbus.org).

national Vice-President. Other considerations were that Bari is an important economic and university center with a rich historic and cultural heritage and with close connections to most countries of the Adriatic region.

#### A. The 3 Organizers

**AICA** - *Associazione Italiana per l'Informatica ed il Calcolo Automatico* - is the leading Italian ICT Association with some 3,000 individual members, 5 sections and 300 organizations. It is a partner to CEPIS in assessing IT professionals, and a founding member of IT STAR. It holds 2 major annual conferences – its Annual Congress and Didamatica - and up to 15 other events p.a., has issued nearly 2 Million eSkills cards so far, and organizes the process of national IOI-related competitions and the preparation and participation of Italian high-school students in the International Olympiad in Informatics.

**Politecnico di Bari** is founded in 1990 and currently has one of the highest standings among Italian public universities for excellence and quality of scientific research. It has 3 Faculties.

**IT STAR** as a regional information technology association of 15 leading national computer societies in Central, Eastern and Southern Europe, has the mission to augment the activities of its members by providing a forum for debate within a regional and international context. It organizes conferences, publications and projects related to education, research, development and applications within the IS agenda, and disseminates information and results internationally.

#### B. Mission, program and participants

The mission and objectives of the event were intended to provide a forum to representatives of academia, government, business and professional organizations to debate the state, problems and challenges within topical areas of eBusiness in order to offer input and recommendations to IT STAR's member societies, as well as to national and international bodies with an interest in the subject.

The program was developed in a way to allow a profound debate in three distinct areas, namely national experiences, strategies within commercial organizations and eBusiness competences and skills, with participants coming from 11 countries – Albania, Austria, Croatia, Czech Republic, Germany, Hungary, Ireland, Italy, Lithuania, Slovakia, Slovenia – and representatives of the European Commission, the European Information Technology Observatory, the CEN WS on ICT Skills and the Municipality of Bari. Among the participants were the Presidents of the leading national computer societies of Croatia, Italy and Slovenia, the President of the Albanian Academy of Sciences, the Rectors of Politecnico di Bari and the Polytechnic University of Tirana, leaders and representatives of commercial organizations and associations such as SAP, TNT Post, INFOBALT and KnowK Ltd.

13 presentations were delivered during the opening debate and the 3 consecutive sessions. Posters were displayed in parallel and a satellite event, organized by AICA's Puglia Chapter during the afternoon of 2 May, consisted of a presentation on AICA's certificate on Digital Forensics, a roundtable on scientific methods in Digital Forensics and an award ceremony of the Regional Education Office (USR) - AICA school competition "IT is Mine" - <http://www.youtube.com/watch?v=myoUN3iKBIA>.

#### C. Executive Summary of Presentations

##### C.1. Keynotes

The debate was kicked-off with 2 keynotes, which outlined the broad eBusiness perspective in Europe.

The recently elected AICA President and EITO Chairman, **Prof. Bruno Lamborghini** took a broad-sighted view on *eBusiness Strategies to face the EU structural crisis*. Investment in digital technologies and economic growth are closely interrelated and countries that are not able to actively participate in the digital scenario risk significant unemployment rates, reduced competitiveness and living standards. A stronger application of digital technologies and eBusiness diffusion is the way forward to renew the European Union as a real federation extending beyond national interests and conservative political thinking with a capacity to adapt quickly to change that reflects technological development and global competition trends. eBusiness should become the common European language across all EU citizens, public institutions and businesses. New digital technologies and applications, stronger e-competences and Skills, interactive mobile communications, online banking and value chains, increased security systems, virtualization of all documents, harmonization and standardization of procedures are some of the priority issues of the digital scenario. The European Digital Agenda 2020 is the useful frame as long as it is taken as THE strategic priority in Europe's social and economic development.

In early February 2013 the Conference organizers wrote to Ms. Neelie Kroes and Mr. Antonio Tajani, EC Vice-Presidents and Commissioners for the Digital Agenda and Industry and Entrepreneurship, expressing support to the Grand Coalition for Digital Skills and Jobs initiative and its objectives and actions in training, mobility, awareness, certification, and innovative learning, and inviting an EC speaker at the WS on eBusiness in Bari. The response was positive and **Mr. Alexander Riedl**, Deputy Head of Unit Knowledge Base of EC DG CNECT, was the second keynote speaker on *Digital Business in Europe: Beyond eEverything*. It is necessary to go beyond the "eEverything" approach of pure concepts, specific sectoral or national policies. A collective push towards making European businesses go digital and towards more digital entrepreneurs is needed. European companies are making slow progress in adopting ICT for their business, with a gap between large companies and SMEs. There is greater usage in the ICT and in the wholesale and retail sectors than elsewhere in the economy. Broadband access and websites

are becoming standard, however eCommerce and the use of more sophisticated ICT tools for internal processes are less frequent in SMEs.

Key areas are framework conditions, specific support measures for SMEs and ICT practitioner skills: the EC has taken action to improve the framework conditions in the areas of interoperability and standards, trust and security, cloud technology, affordable broadband, and other. There are specific EC programs (see [http://ec.europa.eu/enterprise/sectors/ict/ebsn/index\\_en.htm](http://ec.europa.eu/enterprise/sectors/ict/ebsn/index_en.htm)) in support of SMEs, which need to connect better for doing business with larger enterprises and integrate into global value chains in order to be competitive. To this end, smart use of information technology is essential. Access to skilled ICT practitioners is another major issue. There is a projected shortfall of up to 900,000 ICT professionals in Europe by 2015 and a decline in computing science graduates. To ameliorate the situation the Commission launched a multi-stakeholder partnership, the Grand Coalition for Digital Jobs so as to increase the overall supply of digitally skilled professionals and to better match supply and demand of digital skills.

## C.2. Country-related presentations

National perspectives related to some of the issues of the eBusiness agenda were provided in the following presentations:

**Prof. Nicola Costantino**, Rector of Politecnico di Bari, spoke about *b2c eCommerce Practices*, which have a strong upward trend in differentiated ways, and performed a SWOT Analysis to show possible future developments. The differentiation seems to depend on age and clients' instruction levels, and connectivity, product features, and other parameters. In this regard Italy ranks in the middle of digitalized leaders and "traditional" countries. e-Commerce will change business practices in most market sectors by replacing "traditional" physical market models with virtual ones or supporting business with ICT virtual tools, particularly for Customer Relationship Management.

The Strength of b2c e-Commerce relates to scale effects: in a virtual store there are no space limits which helps optimise the cost of labour. On the other hand, the absence of a direct, material contact between the potential client and the offered goods is a Weakness particularly in fashion and handcrafted products, where the fitting and "touching" experience is critical. Furthermore, the delivering process is another bottleneck for physical products related to cost, time and the efficient logistical chain. Opportunities include an impressive global diffusion of Internet connections enlarging the potential markets and shrinking physical limitations. Threats related to difficulties in solving the weaknesses (physical contacts and logistic processes) and to the vulnerability of criminal behaviour. The reputation in a commercial relationship is also very important - in the early stages of e-Commerce it was, perhaps, the most important obstacle to large diffusion but nowadays there are excellent virtual substitutes of the traditional "word of mouth" for

supporting the commercial reputation of a supplier.

Croatia joins the EU on 1 July 2013 and aspects of the country's *eBusiness* readiness were analysed and assessed in comparison with EU member states by **Mr. Ranko Smokvina**, senior ICT consultant and CEN eInvoice Gateway Country Information Manager for Croatia. Two important eStrategies have expired - eBusiness strategy (2007-2010) and the eGovernment Strategy (2009-2012) – updated versions are in the pipeline. Another two strategies are under development - the ePublic procurement strategy for the period 2013-2016 and the eHealth strategy for the period 2014-2020. The main documents necessary to direct and guide development of eBusiness in Croatia are not yet incorporated into the national framework, or are outdated. The main objective to be achieved with eBusiness is cost reduction, which could reach up to 3% of GDP - a remarkable figure in a period of recession. Raising competitiveness, better eGovernment and automation of all administrative and business processes are other important objectives. eBusiness is important for Croatia's competitiveness, which is struggling already six years in a state of recession. New initiatives are necessary, yet the Croatian government hesitates to push harder with eGovernment and eBusiness activities and does not fully account the current unfavourable economic situation.

**Mr. Pavol Fric**, vice-president of DITEC a.s., presented the objectives of the electronic execution of public authority in Slovakia and discussed the *Impact of the new Slovak eGovernment legislation on business entities*. Its principles and areas of coverage were described.

The law impacts business entities:

- All transactions could be executed in electronic form and business entities can perform all interaction with governmental bodies electronically
- Reduces administrative burdens for business entities – reducing paperwork (reference data) and confirmations
- Reduces costs – fees for electronic services are reduced and there is a reduction of communication costs.

Electronic delivery is automatically applicable to all business entities, which have to implement interfaces to their electronic mailbox and support such electronic delivery processes. The impact, however, is not entire as the electronic communication covers only interaction between business entities. Further legislative acts need to be implemented to codify electronic communication in business processes vis-à-vis EU legislation and standardization.

The Albanian presentation, delivered by **Prof. Neki Frasheri**, Polytechnic University of Tirana, and co-authored by Prof. Jorgaq Kacani, Rector of the same University, and Prof. Gudar Beqiraj, President of the Academy of Sciences of Albania, provided an overview on processes and informatics education related to eBusiness in Albania.

There are some concrete signs for a real eCommerce system

in Albania though difficulties prevail. The World Bank “Doing Business Reports” show a contradictory situation. A consequence of this situation is that education related to eBusiness remains fuelled by imported theoretical assumptions. The feedback from companies working in development and implementation of big projects is that they are not satisfied with the character of education given by universities, and that they would prefer an education focused on industrial issues instead of research. On the other hand legislation pushes universities more towards research as the only way for an academic career. Research itself is difficult because of very limited funding.

The Faculty of Economy of University of Tirana offers BSc, MSc and PhD in informatics applied in the economy. Their curricula include a strong component on economic disciplines. While many other universities offer informatics courses and diplomas, these are the only diplomas strictly oriented towards eBusiness. In parallel to universities, pure technical professional courses and exams are organized by different organizations for major businesses. Apparently, leading IT companies are forced to send young specialists from the university in these courses or to organize them to reshape their technical capacities matching the requirements of the company.

### C.3. Reengineering the Enterprise: eBusiness in Companies

*Disruptive B2B2C eBusiness Solutions on Next-Generation Mobile-empowered Business Webs* was the title of the presentation of **Prof. Martin Przewloka**, Senior Vice President of SAP and worldwide responsible officer for the Global SAP Program of Mobile Empowerment. It focused on SAP’s introduction of the concept and vision of a Business Web to offer a real-time, trusted marketplace of services, accessible on any device to enterprises, governments, and citizens, and provided examples how a mobile-enabled Business Web allows seamlessly integrated information processing resulting into innovative and disruptive B2B2C business models.

SAP’s research and advanced development strategy was illustrated by concrete scenarios and cases to explain how SAP builds and delivers those sustainable solutions based on a cloud-based universal platform. Mobile solutions to empower businesses and consumers/citizens have to become more relevant to the users and to create additional value. The market winners will be those who provide innovative and disruptive solutions that deliver significantly more value to the users instead of just adopting existing scenarios and making them consumable on a mobile device. Mobiles will play one of the most important roles to mitigate or overcome challenges related to aging, urbanization and future energy supply, and to allow emerging countries to leapfrog steps on their social and economical development. Some concrete examples of SAP projects and prototypes were showcased to describe obstacles and lessons learned.

**Mr. Massimo Bollati**, ICT and Digital Director at TNT Post and CIO of TNT Post Italy Group, presented TNT Post

as the first private postal operator in with 4,500 employees, over 15,000 clients and a coverage of 70% of Italian Families, which delivered in 2012 some 400 million letters and printed 450 million A4 sheets.

Thanks to the launch in 2007 of a patented system of delivery with geo-coding and satellite certification that gives the client complete control of the processes and a saving on the total cost of the shipment, TNT Post has successfully innovated the market and grown exponentially. It has changed the field of its activity in order to satisfy new clients’ requests in business communication, taking advantage of the new technology environment and focusing on a role of unique interlocutor for any business client. Its services address business communication needs such as Analysis, Management, Optimization of the distribution plan, Document composition, Data processing, Printing, Labeling, Envelope stuffing, Database Management, Mail, Collection/pick up, Sorting, Transportation, Delivery, Document management, E-invoicing, Optical and Substitutive archive, PEC (Electronic Certified Mail), Hybrid Mail, Multi-channel Delivery, Management of the returns process. Digitalization of business communication and the growth of eCommerce in Italy pushed TNT Post to introduce new business lines and new digital services. Multi-channel and eBusiness management completed the company value chain.

**Ms. Vilma Misiukoniene** of INFOBALT Association of the Lithuanian ICT Industry presented the topic of *Intellectual Property Rights in eBusiness of Intangible Digital Goods* as it relates to recorded music and books. The EU digital market for recorded music seriously lags behind those of the US and Japan. One reason is that it is fragmented, the copyright legislation is outdated and legal barriers are the main obstacle to introducing new business models for cross-border digital distribution of music and videos. A similar situation exists in the publishing sector. While eBooks account for some 25% of book sales in the USA, digital publications in the EU are drastically below that mark. These are missed opportunities as the digital market provides significant potential for consumers, authors and creative industries.

### C.4. Skills for eBusiness

**Associate Prof. Denise Leahy** of Trinity College Dublin and **Associate Prof. (retired) Dudley Dolan**, Chair of the CEN WS on ICT Skills, addressed “eLeadership” as a combination of business skills and technological knowledge required to take advantage of ICT, and outlined some of the requirements for eLeadership for competitiveness, innovation and growth in Europe, arguing that such capability and skill can come from all levels and all parts of the organization. eLeaders need to be comfortable with IT and systems and able to recognize where opportunities arise in big data, consumer attitudes, security, business value of the Cloud, social media, and other.

**Mr. Roberto Bellini** spoke on behalf of his co-authors,

Messrs. Giulio Occhini and Paolo Schgor of AICA, and presented a *Digital Innovation Leader Profile* based on eBusiness and IT innovation competences for non-IT enterprises. This profile, grounded on such models and frameworks as the CNEL Model of competence and professionalism, e-CF - the European eCompetence Framework, EUCIP - the European Certification of Information Professionals, and other, suggests emerging competences and profiles for the Digital Innovation Leader [see p. 8 for a synopsis of the presentation].

**Prof. Giuseppe Mastronardi** of the Politecnico di Bari presented offerings on security issues and eBusiness skills.

Finally, **Mr. Felice Curcelli** presented LiberCloud.com and a new content authoring and publishing platform and a new, simplified approach for creating and delivering multimedia lessons and courseware in the classroom. The proposed solution leverages traditional methods of content management and collaboration with an emphasis on simplicity, as well as new innovative tools that give authors the ability to create interactive content. The gained flexibility allows for the adoption of alternative or multiple didactic methods. The solution is delivered as a platform for social networks of teachers and students.

#### D. The Bari Takeaway

The debated issues of the 7<sup>th</sup> WS on eBusiness boil down to “Go Digital” – the growing business milieu for physical, human, managerial and financial resources in doing competitive business.

The “Five Easy Pieces” of the Workshop debate could be summed-up as:

- The EU lags behind other world regions in eBusiness - efforts to catch-up are vital to sustain the EU’s competitiveness and socio-economic standards;
- There are eBusiness visionaries in Europe but EU’s political, legislative and economic hesitation and national fragmentation are barriers, which explain the current state of affairs;
- The eSkills gap hampers socio-economic development;
- SMEs in the Digital scenario need to be better appreciated and supported;
- DAE provides a strategic priority, as long as it is taken for real by the governing elites.

Along these lines, the workshop participants adopted the Conference Declaration [see p. 7]

#### E. Conference Documentation and Follow-up

Slide presentations, abstracts and other conference documentation are available at the WS website – [www.itstar.org/ws7](http://www.itstar.org/ws7). The Declaration is also there and was distributed widely soon after the event.

The edited post-conference proceedings are under preparation and the publication will be made available to the conference participants and to national and international authorities as a contribution to DAE. ■





## **7<sup>th</sup> IT STAR Workshop on Electronic Business, 3 May 2013, Bari, Italy**

*Whereas IT STAR recognizes the importance of exchanging experience, insights and practices in facilitating the use of information technology to the betterment of work and life, and facilitates the processes by organizing meetings of professionals,*

*We, the participants of the 7<sup>th</sup> IT STAR WS on eBusiness, have adopted the following*

### **Declaration**

1. The increasing relationship between investment in new digital technologies and economic development is evident and countries unable to take active part in the new digital scenario risk to be marginalized with increased unemployment and reduced competitiveness and quality of life.

The European Union faces such a risk if no adequate action is taken.

2. The road to follow is to apply digital technologies and eBusiness diffusion to renew Europe across all its states, citizens, education systems, public and private institutions and enterprises, and to develop the capacity to constantly adapt to change at a speed imposed by technological development and global competition.
3. Wide diffusion of eBusiness, driven by new digital technologies and applications such as Cloud applications, Big Data, Analytics Intelligence, Application Data-warehousing, and advanced Security, would assist Europe in facing the dramatic structural crisis and in boosting its economy.
4. The European Digital Agenda provides a useful frame as long as it is considered as the strategic priority. eBusiness is part of a common European language in changing old models and in building a real European federation, in which more focus and investment is given to “human infrastructures”, new cultural attitudes, new business models, and new open innovation approaches.
5. There are good examples in CEE countries that can contribute to this process. IT STAR’s member societies, as leading national professional informatics associations, have a major role in interacting and harmonizing efforts towards our common European project.
6. We consider this event an opportunity to contribute our insights, knowledge, experience and expertise to bring to the attention of those who have duty, responsibility and power to adopt adequate measures to deploy digital technologies for the prosperity of Europe.

## Digital Innovation Leader Profile

*Synopsis of presentation on e-Business and IT Innovation Competences for NON-IT enterprises at 7<sup>th</sup> IT STAR WS on eBusiness, 3 May 2013, Bari*

*Roberto Bellini, Giulio Occhini and Paolo Schgör*



**Roberto Bellini** is President of AICA's Milan Chapter and board member of AISM, the Association of Marketing Professionals. He is EUCIP Manager, Italy.



**Giulio Occhini** is AICA's Chief Executive Officer. He was President of CEPIS in the mid-90s during a period that was crucial for introducing the European Computer Driving Licence (ECDL) on a pan-European scale. Giulio served as IT STAR Coordinator for the period 2006-2010.



**Paolo Schgör** is ECDL and EUCIP Certification Manager at AICA.

### Why a Digital Innovation Leader Profile?

Technology evolution (based on digital cooperation at social, professional and economy levels) and the digitalized workplace (fixed and mobile), push for new individual and collective knowledge creation and intelligence to be applied to new products and services.

From an organizational point of view, behavioral changes at personal levels and structured process, incrementally optimized by introduction of even more powerful technology in action, requires organizational flexibility and speed of adapting to market and social needs: to innovate both products and production and logistics process, Project Team Leaders capable of understanding and anticipating new and changeable demand are needed.

The new diffused and shared concept of competences (skills applied in a given context) help to design and activate also innovation paths to build up new job skills including more complex technical competences, but also economic and behavioral competences for PTL enriched with decisional

autonomy and problem solving capabilities.

**Innovation** (in general) is generated by individuals with entrepreneurial capabilities (also if employed) to transform an idea or a prototype into a business success. We define a person with these competences and personal characteristics as an **Innovation Leader**. Due to the fact that in the manufacturing and service world, two types of technologies contribute to innovation (IT-Information Technology and OT-Operational Technology), the aim of this contribution is to identify which types of competences would be helpful for a **Digital Innovation Leader**.

### The need of a competence and professionalism general Model

**Disruptive Innovation** (in which technologies play a “disruptive” role, with a new generation of products or services not present before in the market) and **sustainable innovation** (C. Christensen), defined as an incremental optimized mix of resources and process to produce and distribute an already known product/service, requires, to be implemented, a wide and complex combination of competences of at least 7 disciplinary clusters in the entire Value Chain Model, defined by M. Porter.

The CNEL Model, defined by Italy's National Council of Economy and Labour (CNEL) in late 2010, allows classifying Competences and Professionalism of different disciplinary clusters with reference to a common taxonomy. This model has been recently considered as a useful reference by UNI, the Italian Standards Body, to accompany the transformation of CWA 16458 (published by CEN/ISSS and related to the European e-Competence Framework and professionalism Profiles for the ICT cluster) into an Italian Technical Norm.

The most important standard of digital competences (at least in Italy) to the design of a generic Digital Expertise inside NON ICT Organizations is easily hosted in the general taxonomy of the CNEL Model. It includes:

- ECDL, as the most important independent digital use competence standard: any NON ICT professional profile should be equipped with digital use competences, as enhancing the presence in any company of the personal technologies by employees (Smartphone, Tablets, PCs)
- EUCIP, as one of the ICT practitioner competences and profile standards, more technical, adopted in some countries, like Italy
- e-CF set of a further ICT practitioner competences and professional profiles standard, more managerial, recently launched in the digital labour market (CEN/ISSS Workshop)

### The generation of a new type of emerging competences and the new profile of a Digital Innovation Leader

We will use the opportunity offered by the CNEL Model to propose a criteria to design the Digital Innovation Profile, based on the **e-CF framework**.



The case study addresses the request of the market for a new complex profile like that of Digital Innovation Leader (DIL). It could be useful to add to the above distinctions of IT contribution to innovation a new **e-Business competence**. It may be defined as the use of IT inside all enterprise activities, where the term “business” identifies the exchange of products and services among companies, groups and individuals and is seen as one of the essential activities of any type of commerce. E-business methods enable companies to push integration of their internal and external data processing systems to obtain more flexible performance, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers and for effective and efficient management of their internal functions.

The theory of Disruptive Innovation pushes to introduce in the DIL Profile, some competence of **economic** and **marketing/communication**. In the CNEL Model, we can add this category of competences between technical and behavioral as shown in the figure: the red insertion interprets this type of further improvement of a generic Innovation Profile and identifies the new competences for a Digital Innovation Leader.

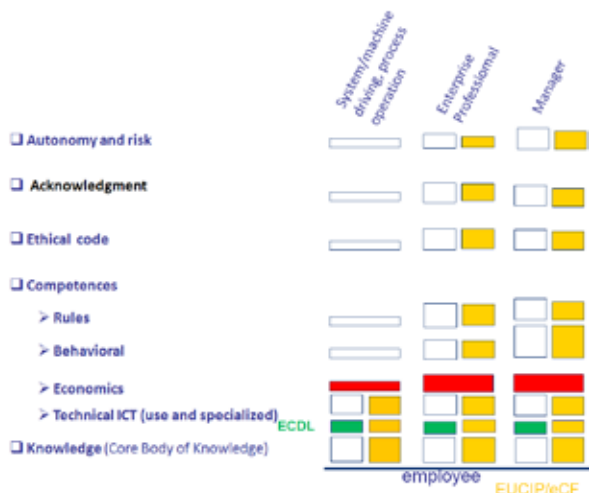


Figure-The CNEL Model to define the new competence taxonomy for DIL, enriched with economic skills and with evidence of digital skills inside NON ICT Organizations

The new taxonomy guaranties that Digital Innovation Leader Profile developed on the Business Analyst and the Project Manager Profiles already available in the e-CF Profile Portfolio, will be completed with methodologies and techniques of Customer Relationship Management, Enterprise and Social Networking from one side and with Marketing and Economic skills like, for instance, Buying behavior of customers, Product Functional Use and Product Life Cycle, Product Positioning and Pricing, Customer Profiling, Market Segmentation, EBITDA, etc.

As shown in the figure, the Digital Innovation Leader could be selected, in terms of technical and economic competences, from any family of enterprise professions.

Some more conditions to facilitate and accelerate the build up of DIL competences are recommended in our paper for the post-conference proceedings of the 7<sup>th</sup> IT STAR WS on ICT Skills. ■

## Creating a Large Talent Pool of ICT Professionals and e-Leaders in Europe

André Richier, Tobias Hüsing and Werner B. Korte



**André Richier** is Principal Administrator within Directorate General Enterprise and Industry of the European commission. He is responsible for policy issues relating to the competitiveness of the ICT industry and in particular of the implementation of the EU e-skills strategy.



**Tobias Hüsing** is an economist and works as researcher at empirica, mainly in analysis and consultancy in the fields of e-skills and innovation.



**Werner B. Korte** is director of empirica and responsible for managing many large-scale international R&D and consulting projects in the e-skills area for the European Commission, governments and industry.

**The key objective of the EU e-Skills strategy is to reduce digital skills shortages, gaps and mismatches in Europe. A large talent pool of ICT and business savvy professionals is an important enabler for competitiveness and innovation in Europe.**

There is broad consensus among stakeholders about the crucial importance of e-skills for Europe: skills shortages, gaps and mismatches and the digital divide will affect negatively growth, competitiveness, innovation, employment and social cohesion in Europe. As new digital technologies are developing rapidly, e-skills are increasingly sophisticated and need to be constantly updated. There is a critical need for individuals with creativity, innovation and higher-level conceptual skills. Improving the availability of e-skills and increasing the European talent pool involves actions at EU and national levels primarily in education, training, research, industrial and labor policies but also in domains such as immigration and taxation.

Based on the Communication of the European Commission

on “e-Skills for the 21<sup>st</sup> Century”, the EU long-term e-Skills strategy is making progress. Foresight scenarios on the supply and demand (2015-2020), an analysis of the impact of global sourcing and a European e-competence framework are now available as well as many multi-stakeholder partnerships. To raise awareness on the growing demand for highly skilled digital jobs the Commission organized the e-Skills Week (26-30 March 2012). This initiative demonstrated a strong mobilization of stakeholders in a wide range of pan-European and national activities including 2.235 events involving over 1.8 million participants in 37 European countries.

### The demand and supply of ICT professionals in Europe

The ICT workforce in Europe in 2011 amounted to 6.67 million, 3.1 % of the overall workforce. 5.25 million of these come from the occupational groups representing ICT practitioners and 1.42 million can be described as ICT professionals at management level and include chief information officers, ICT operations managers, project managers but also those ICT workers responsible for planning and strategy such as enterprise architects, systems analysts and ICT consultants. If we include the ICT mechanics and manual worker skills, 3.7 % of the European labor force, or more than eight million workers in the EU are ICT professionals, based on job classifications used in the labor force surveys. The share can go up to 6 % in some countries. Of these ICT professionals, one in six is holding a highly skilled management and / or business architecture level skills position but the vast majority can be found in the core group of ICT practitioners.

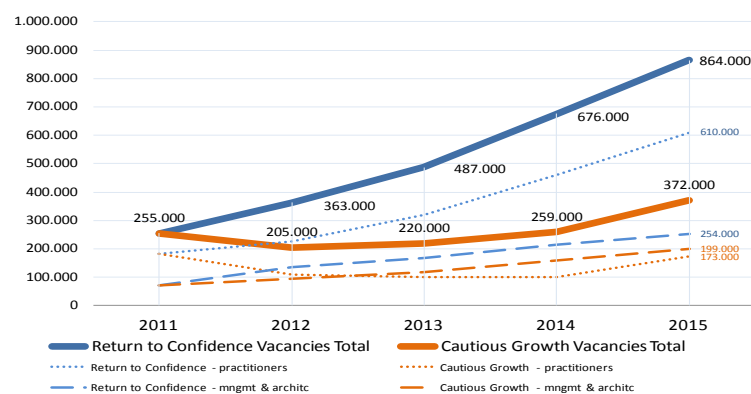
The ICT workforce in Europe has been growing over the past decades and will continue to grow in the future. There has been a steady increase in the number of ICT professionals in the workforce. And there is no indication that this trend will change. The annual growth of ICT employment has remained very robust throughout the crisis so far. From 2000 to 2010, the ICT workforce grew at an average annual rate of 4.26 %. Even at the times of the economic and financial crisis, which Europe is undergoing since late 2008, growth remained at 2.65 %. The labor market seems to absorb all ICT graduates even through the crisis.



ICT workforce growth 2000-2011, source: empirica, IDC Europe and INSEAD eLab, 2013

The demand for ICT professionals is outnumbering the supply. The results of a survey by empirica in eight European countries in 2012 show that the excess demand for ICT professionals, extrapolated to the whole of Europe can be estimated at 255.000 in 2012. Among these, about 72.000 vacancies correspond to “ICT management and business architecture” types of jobs and about 183.000 to “ICT practitioners” and “other ICT technicians” jobs. Interest in ICT education is diminishing among younger generations. The number of computer science graduates has been in continuous decline in Europe since 2006. The effect of the decrease of the number of entrants in the ICT workforce is intensified in Europe by an increasing number of exits. For example, in the UK the number of graduates in 2009 decreased to 68 % of those who had graduated in 2006. Over 70% of vacancies are in SMEs, which have much larger problems in recruiting e-skilled professionals needed than larger organizations. Future demand will increasingly occur in higher-level ICT jobs including management, planning, strategy and ICT development specialist occupations, and less in ICT support, delivery and operation, i.e. infrastructure type occupations.

Based on five initial different scenarios, two simplified scenarios have been elaborated: “return to confidence” and “cautious growth”. Return to confidence features a slow return to GDP growth in the area of 2 % until 2020 and a return to moderately optimistic ICT investment growth rates. The cautious scenario features rather flat GDP growth of 0.9 % to 2015 and 1.7 % afterwards and an ICT spending growth of 2.1 and 4.3 % annually, respectively.



Source: empirica, IDC Europe and INSEAD eLab, 2013

### The demand and supply and of e-leaders

The first European conference on e-leadership skills took place on 5 February 2013 at INSEAD in Fontainebleau. Further elaborating on the definitions produced by the European e-Skills Forum, the term e-leadership has been defined as follows: e-leadership is the accomplishment of a goal that relies on ICT through the direction of human resources and uses of ICT. Effective organizations demand e-leaders with a T-shaped portfolio of skills, representing expertise in both using ICT and developing organizations. Very simply, having a T-shaped portfolio of skills, means

that a leader is both business and ICT-savvy. It means that a leader has the following skills: a vertical set of skills that represents expertise or “deep knowledge” in a specific area (e.g. science; engineering; ICT; social sciences); a horizontal set of skills that represent “transversal skills” (e.g. negotiation; critical thinking; design and systems thinking, business and entrepreneurship etc.) that enable collaboration across a variety of boundaries. Both vertical and horizontal sets of skills require a basic level of ICT user skills.

An e-leader is both business and ICT-savvy and effective organizations are demanding e-leaders with a T-shaped portfolio of skills, representing expertise in both using ICT and developing organizations. Having a T-shaped portfolio of skills means that a leader has the following skills:

- A vertical set of skills that represent expertise or “deep knowledge” in a specific area (e.g., ICT; science; engineering; social sciences etc.);
- A horizontal set of skills that represent “transversal skills” (e.g., negotiation; critical thinking; design and systems thinking, business and entrepreneurship, etc.) that enable collaboration across a variety of boundaries;
- Both vertical and horizontal sets of skills require at least an advanced level of ICT user skills.

Each set of activities demands either strategic understanding (knowing what is possible) or practical understanding (knowing how to do the possible) of a set of skills. Depending on what sets of activities an e-leader is responsible for, s/he will need to have a strategic understanding of some areas of expertise and a practical understanding of other areas of expertise.

There are two broad types of e-leaders: technology-focused and management-focused. The T-shaped portfolio of skills varies for e-leaders, depending on what sets of activities they are responsible for, and consequently, what areas of expertise they need to have either a strategic or practical understanding of. The overall demand for e-leaders in Europe was conservatively estimated in 2012 at 683,000 while the supply is estimated at 661,000. These are the leaders of tomorrow and these are critical positions of strategic importance for the future growth, competitiveness and innovation potential of the European industry.

#### **Next steps for the EU e-skills strategy**

While the momentum will be sustained and intensified, in particular in the scope of the “Grand Coalition for Digital Jobs” launched by President Barroso on 4 March 2013, it will also be necessary to address the critical need for e-leadership skills. Therefore in addition to the promotion of ICT professionalism based on European e-competence framework, an important goal for the future (2014-2020) will be to generate a large talent pool of entrepreneurs, business leaders, managers and advanced users with a focus

on the strategic use of new information and communication technologies to foster competitiveness and innovation and reinforce the competitive advantages of the European industry.

The following activities will take place in 2013: monitoring key indicators and scenarios, and benchmarking national policy initiatives and multi-stakeholder partnerships with a special focus on SMEs and start-ups; developing European guidelines and quality labels for new curricula (including a demonstration of their implementation); fostering the international dimension and assessing the impact of globalization on e-skills requirements, analyzing major policy initiatives and best practices in the world. In 2014 the following activities are planned: development of a European meta-model of foundational body of knowledge for ICT practitioners and of a sustainable operating model for the promotion of ICT professionalism in Europe; development of targeted actions for start-ups and fast growing SMEs to provide them with relevant e-leadership skills for entrepreneurs, managers and advanced users; and the organization of a pan-European communication and awareness raising campaign. ■

#### **Main policy initiatives**

The European Commission adopted in September 2007 a Communication on “e-Skills for the 21st Century: Fostering Competitiveness, Growth and Jobs”, presenting a long-term e-skills agenda. The Commission adopted a Communication on e-Inclusion in November 2007. The Competitiveness Council of Ministers adopted Conclusions on a long-term e-skills strategy on 22-23 November 2007.

The CEN (European Standardisation Committee) ICT Skills Workshop developed the European e-Competence framework. Version 3.0 should be available beginning of 2014.

The Employment Package adopted in 2012, the Digital Agenda for Europe (2010) and other flagship initiatives related to innovation, employment, education and industrial policy include several references to the EU e-skills strategy.

The Grand Coalition for Digital Jobs was launched by President José Manuel Barroso at the conference “e-Skills and Education for Digital Jobs” on 4 March 2013.

## MultiCulti

### The City of San Nicola

Dorothy Hayden



*This time it's Bari as seen by the participants of the 7<sup>th</sup> IT STAR event held here in May. The social program that was generously offered by our hosts exposed us to some of the cultural treasures and hospitality of Bari, a crossroads since antiquity where old and modern cohabitate in harmony. Today's Bari is a vibrant economic center, a leading university city and a gateway to the Adriatic region.*

An informal get-together was offered in the early evening of 2 May on the rooftop terrace of Hotel Oriente, the conference venue and place of stay for most of the international participants, during which old friends met, new acquaintanceships were established, stunning views were shared and Puglian wine and snacks were enjoyed. Hotel Oriente itself is an architectural jewel located on the splendid Corso Cavour and next to the famous Teatro Petruzzelli, an opera temple of national significance.



Following the reception our hosts offered a guided visit to the Basilica di San Nicola. It was built in 1087 to shelter the remains of St. Nicholas of Myrna, and is a destination for pilgrimages both to Roman Catholics and Orthodox Christians. Our visit was intentionally chosen for the late evening as early May is a time of preparation for the Fiesta di San Nicola, celebrated between 7 and 9

May with religious services, processions, flotillas of boats with the statue of the Saint, and many lights and decorations in the streets.



On the way back, we strolled through the historic center with its winding narrow streets and miniature squares with nestled cafes and restaurants offering Puglian cuisine. This labyrinth is enclosed by the medieval city walls, which offer an elevated walking path.

After the close of the conference next day we were taken on another guided tour of the city – through the modern center and on to the labyrinth of Bari Vecchia - past the Duomo and many churches, along Castello Svevo - and then on the Lungomare Imperatore-Augusto seaside promenade, in the direction of the Margherita theater and on to the splendid seaside restaurant next door where the organizers hosted the Conference Dinner. What a pleasant way to round-up our impressions of Bari, with some of the most impressive views of this thriving city. ■



## Days of Slovenian Informatics - Twenty Years After

Niko Schlamberger



*Niko Schlamberger is President of Slovensko društvo INFORMATIKA. He has served the international ICT community in various roles including as IT STAR Coordinator, IFIP Vice-President and CEPIS President.*

The twentieth conference Days of Slovenian Informatics ([www.dsi2013.si](http://www.dsi2013.si)) has taken place in the agreeable environment of the Slovenian littoral in Portorož/Portorose from April 15 to 17, 2013. From the title of this contribution alone one can guess that it implies a jubilee. Indeed, this year the conference has lived to see its twentieth anniversary. This is an opportunity to contemplate on its beginnings, its present and also to imagine what should be its future.

The times when the Slovenian Society INFORMATIKA decided to organise a conference were rather different from what we are experiencing today. The president that has then started his term has had a broader view as to importance and role of informatics not only for increase of productivity and effectiveness, but even for the development of the society in general. Also, in the board of society academia was represented stronger than before. After some twenty years of existence the Society was mostly active within national borders but the country has in the meantime entered massive changes that can be shortly described as a three-in-one transition. Three transitions - political, economical and European - have taken place at the same time and all three needed to be carried out successfully. Informatics professionals have understood informatics to be the motor of economical and societal changes, which has been later confirmed by The Bangemann Report. The decision that Society needs to offer its contribution in the process was a logical one; the question was only in what form should it come. The idea was to offer the knowledge and experience and the Board decided to start a professional journal and

a national informatics conference. Let us only shortly mention that the journal has been then the first Slovenian professional journal on informatics and that it is still the only one of its kind in the country. This alone is a proof of the correctness of this part of the decision.

Regarding the conference, the situation was similar. There has been experience and know-how in the SSI on organising this kind of events but a novelty was to manage one independently and without support of an established entity. That was a new challenge that has been mastered successfully. The conference has started as the most important annual independent national event of informatics and has remained such. This is also a proof of the correctness of the respective part of the decision of the SSI Board. If the first few returns of the conference are compared to what it has become today one can see constant issues but also changes that reflect development in informatics. The initial scheme was to establish a forum where scientists, professionals, providers and users could meet to present findings, test new ideas, learn of what is available and where, and also to compare national achievements with global state-of-the-art in science, profession, and industry.

The scheme has proved to be viable with necessary changes and improvements both in content and in form. It would be beside the point if we tried to describe the evolution of the conference so let us instead concentrate on the last one. The *fil rouge* - Twenty Years After - hints in a somewhat literary way on the round anniversary. Even a short account of the conference would take us too far into detail so let us give just the highlights. A round table has been devoted to this jubilee where all past presidents of the Programme Committees have been invited to reflect upon their role and provide their opinions and views not only on the past but on the present and the future of the conference as well. As has been a tradition for quite some time yet, notable guest speakers have been invited also this year. The following are some of them that were impressive but the account is far from exhaustive. Dr. Dejan Stančič of European Commission has presented the goals and opportunities as defined in Digital Agenda for Europe 2020. Mr. Plamen Nedkov of IT STAR has given an insight on International Olympiad of Informatics and its potential. Professor Blaž Zupan of University of Ljubljana has opened a rather new





*D. Stančič, EC*

discipline of informatics - the big data. Professor Bernhard Hämmerli of Swiss informatics association has presented the strategic importance of critical infrastructure, which does not relate only to information technology.

Altogether, close to hundred papers and presentations have been submitted and presented in three days in twelve conference tracks and two round tables. We conclude that the conference has been a success even in spite of the risk that has been present due to the not exactly optimistic economic situation of the country. However, from the presentations, discussions and feedback provided by the participants there are some ideas that are worth to observe and put into life in the future. The first set is what has been seen as positive so far and should be a part of the conference in the future. This part contains following the development in informatics and computing and adapting the programme accordingly by including new promising disciplines and deleting those that have become routine and have not very much new to offer any more. Also important is to keep relationship with academia as the knowledge collected in universities and laboratories sooner or later enters the real life and business. The wisdom is in how to create an appropriate mix of scientific, professional and industry-oriented contributions.

The second part of suggestions relates to how to extend the content so it will be attractive for the industry and for young professionals. Some steps in this direction have been made this year already. A session has been devoted to start-ups, another one to students' achievements where also recognition has been awarded to the best student project. A poorly used potential of the conference is that it should be more open to the industry as has been the case in the past. This can be done in many ways, for example to use the conference as the forum where investors meet students. It would be a pity if good and marketable ideas were not used and realised for the benefit of all. We must understand our reality: Slovenia is a small country, a small economy and its future does not lie in a massive production of any kind of goods and services but in discovering and deploying niche opportunities. To do that, the most important assets are knowledge, insight, and right decisions. In short, we believe that the conference has also a future. In this way it will be of interest for the industry as a place to demonstrate the supply and at the same time as a shop window where promising new articles are on display. ■



*P. Nedkov, IT STAR*

## Member Society News & Events

### Bulgaria

#### Advanced International Summer School on Cryptology and Cyber Security/Resilience CryptoBG\*2013

[www.cryptobg.org](http://www.cryptobg.org)

14-21 July 2013, "National Institute of Education", Oriahovitz, Bulgaria

#### Topics:

Clouds and searchable encryptions

Efficient elliptic curves arithmetic, implementation on constraint devices

Lattice-based cryptography (with a practical lab in C++)

Side channel attacks

Symmetric-key cryptography; hash functions (SHA-3 competition)

### Lithuania

#### Multi-event "Computer Days - 2013" (KoDi'13)

19-21 September 2013, Šiauliai University, Šiauliai, Lithuania

[http://www.liks.lt/kodi\\_en](http://www.liks.lt/kodi_en)

Organizers: Lithuanian Computer Society and Šiauliai University

#### Contact:

Computer Days - 2013

Lithuanian Computer Society

Geležinio Vilko str. 12-113, LT-01112 Vilnius, Lithuania

Phone: (370 5) 210 9342

E-mail: [liks@liks.lt](mailto:liks@liks.lt)

## Forthcoming IT STAR Event

### 8<sup>th</sup> IT STAR Workshop on History of Computing

21 – 22 September 2014, Szeged, Hungary ■



# 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
- 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. Rován
- 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 communication technology organization in Central, Eastern and Southern Europe which promotes, assists and increases the activities of its members and encourages and promotes regional and international cooperation for the benefit of its constituency, the region and the international ICT community.”*

## Governance

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

- 2012** Bratislava, **Slovakia** (April)
- 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 (cur. Chief Executive)














## Major Activities

- 7<sup>th</sup> IT STAR WS on eBusiness - <http://www.starbus.org/ws7>
- 6<sup>th</sup> IT STAR WS on Digital Security - <http://www.starbus.org/ws6>
- IPTS - IT STAR Conference on R&D in EEMS - <http://eems.starbus.org>
- 5<sup>th</sup> IT STAR WS and publication on Electronic Business - <http://starbus.org/ws5/ws5.htm>
- 4<sup>th</sup> IT STAR WS and publication on Skills Education and Certification - <http://starbus.org/ws4/ws4.htm>
- 3<sup>rd</sup> IT STAR WS and publication on National Information Society Experiences – NISE 08 <http://www.starbus.org/ws3/ws3.htm>
- 2<sup>nd</sup> IT STAR WS and publication on Universities and the ICT Industry <http://www.starbus.org/ws2/ws2.htm>
- 1<sup>st</sup> IT STAR WS and publication on R&D in ICT <http://www.starbus.org/ws1/ws1.htm>
- IT Professional Pool Database (in progress)
- Workshop and publication on National Experiences related to the EU's 5<sup>th</sup> and 6<sup>th</sup> FP <http://www.starbus.org/download/supplement.pdf>
- Joint IT STAR – FISTERA Workshop on ICT and the Eastern European Dimension

## Periodicals & Web-site

The IT STAR Newsletter ([nl.starbus.org](http://nl.starbus.org)) published quarterly. [www.itstar.eu](http://www.itstar.eu) ■

## IT STAR Member Societies

<p><b>Austrian Computer Society – OCG</b>  Dampfschiffstrasse 4, 8. – 9. floor,  A-1030 VIENNA, Austria  Tel. +43 1 512 0235 Fax +43 1 512 02359  e-mail: <a href="mailto:ocg@ocg.at">ocg@ocg.at</a>  <a href="http://www.ocg.at">www.ocg.at</a></p>	 <p><b>Bulgarian Academy of Sciences – BAS</b>  Institute for Parallel Processing  Acad.G.Bonchev str.Bl.25A  SOFIA 1113, Bulgaria  Tel +359 2 8708494 Fax +359 2 8707273  e-mail: <a href="mailto:boyanov@acad.bg">boyanov@acad.bg</a>  <a href="http://www.bas.bg">www.bas.bg</a></p> 
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<p><b>Czech Society for Cybernetics and Informatics – CSKI</b>  Pod vodarenskou vezi 2,  CZ-182 07 PRAGUE 8 – Liben  Czech Republic  Tel. +420 266 053 901 Fax +420 286 585 789  e-mail: <a href="mailto:cski@utia.cas.cz">cski@utia.cas.cz</a>  <a href="http://www.cski.cz">www.cski.cz</a></p>	 <p><b>Greek Computer Society – GCS</b>  Thessaloniki &amp; Chandri 1, Moshato  GR-18346 ATHENS, Greece  Tel. +30 210 480 2886 Fax +30 210 480 2889  e-mail: <a href="mailto:epy@epy.gr">epy@epy.gr</a>  <a href="http://www.epy.gr">www.epy.gr</a></p> 
<p><b>John v. Neumann Computer Society – NJSZT</b>  P.O. Box 210,  Bathori u. 16  H-1364 BUDAPEST, Hungary  Tel.+36 1 472 2730 Fax +36 1 472 2739  e-mail: <a href="mailto:titkarsag@njszt.hu">titkarsag@njszt.hu</a>  <a href="http://www.njszt.hu">www.njszt.hu</a></p>	 <p><b>Associazione Italiana per l' Informatica ed il Calcolo Automatico – AICA</b>  Piazzale R. Morandi, 2  I-20121 MILAN, Italy  Tel. +39 02 760 14082 Fax +39 02 760 15717  e-mail: <a href="mailto:g.occhini@aicanet.it">g.occhini@aicanet.it</a>  <a href="http://www.aicanet.it">www.aicanet.it</a></p> 
<p><b>Lithuanian Computer Society – LIKS</b>  Geležinio Vilko g. 12-113  LT-01112 VILNIUS, Lithuania  Tel. +370 2 62 05 36  e-mail: <a href="mailto:liks@liks.lt">liks@liks.lt</a>  <a href="http://www.liks.lt">www.liks.lt</a></p>	 <p><b>Macedonian Association for Information Technology – MASIT</b>  Dimitrie Cupovski 13  1000 SKOPJE, Macedonia  e-mail: <a href="mailto:indovski.p@gord.com.mk">indovski.p@gord.com.mk</a>  <a href="http://www.masit.org.mk">www.masit.org.mk</a></p> 
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<p><b>JISA Union of ICT Societies</b>  Zmaj Jovina 4  11000 BELGRADE, Serbia  Tel.+ 381 11 2620374, 2632996 Fax + 381 11 2626576  e- mail: <a href="mailto:dukic@jisa.rs">dukic@jisa.rs</a>  <a href="http://www.jisa.rs">www.jisa.rs</a></p>	 <p><b>Slovak Society for Computer Science – SSCS</b>  KI FMFI UK, Mlynská dolina  SK-842 48 BRATISLAVA, Slovak Rep.  Tel. +421 2 6542 6635 Fax +421 2 6542 7041  e-mail: <a href="mailto:SSCS@dcs.fmph.uniba.sk">SSCS@dcs.fmph.uniba.sk</a>  <a href="http://www.informatika.sk">www.informatika.sk</a></p> 
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