



Number 30

This is the 30th issue of the re-launched Newsletter - we set-off on the Journey in 2004 and against all odds continue to keep to the current publications schedule of 4 issues per annum, distributed in Europe and worldwide in digital and printed form.

A president of an IT STAR member society once made the allegory that IT STAR is like an angel. To some extent this is also true for the Newsletter, yet its growth and organization have a material side to it and we are grateful for the extended patronage and thankful to our readers for staying with us.

The current Number 30 focuses on the forthcoming International Olympiad in Informatics from 23 to 30 September 2012 in Lombardy, Italy. There is an article on Digital Forensics and a review of the IPTS studies related to ICT in the BRICS countries. The usual MultiCulti column this time takes you to Salò on lake Garda and you will also find impressions of previous issues, which we hope you enjoyed.

Take the Journey,

The Editor

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Letters to the Editor

"I read your Talent in Informatics article in the summer 2012 newsletter. Congratulations!"

What is coming out is exactly what we wished to get when starting the project: clearly settled indications and well motivated.

The final report will surely represent a fundamental input for the school education managers.

Again, compliments and best regards."

Giulio Occhini
AICA CEO

"Thank you for the wonderful Journal! It would be a pleasure to make reference to your article on Talent in Informatics."

Jenny Sendova
Institute of Mathematics,
Bulgarian Academy of Sciences

In Memoriam



Academician Stefan Dodunekov (5.9.1945 - 5.8.2012)

With sorrow we announce the sudden passing of Acad. Stefan Dodunekov, President of the Bulgarian Academy of Sciences and Director of the Institute of Mathematics and Informatics, on 5 August 2012, and convey IT STAR's condolences to his family, friends and colleagues.

Prof. Dodunekov was Director of the Institute of Mathematics and informatics since 1999 and was elected President of the Bulgarian Academy of Sciences on 11 June 2012. Since 2001, he was Chairman of the Union of Mathematicians in Bulgaria. He was President of the Mathematical Union of Southeastern Europe, professor at the universities of Sofia, Veliko Turnovo, Burgas and Blagoevgrad. He had lectured in Linköping, Gothenburg and Delft. He was a member of the Information Theory Society, the American Mathematical Society, the Combinatorial Society of China, and other.

Stefan was a keen supporter of IT STAR and has contributed to the Association's activities.

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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

Individual articles from the Newsletter may be reprinted, translated, and reproduced, except for denoted copyright protected material, provided that acknowledgement of the source is made. In all cases, please apply for permission to the Newsletter Editor.

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.

International Olympiad in Informatics – Welcome to Italy

An International Event with Extraordinary Opportunities for Education

Giuseppe Colosio



Dr. Giuseppe Colosio, Chairman of IOI 2012 and Director- General of the Regional Education Authority for Lombardy, Ministry of Education

For the last twenty years the **International Olympiad in Informatics (IOI)** has been a major event on the international scene. Since 1989 when the first edition took place in Pravets, Bulgaria, the International Olympiad in Informatics has become a challenge to the brains of secondary school students. With commitment, comparison, healthy competition and intercultural sensitivity as its main values, this competition - along the lines of the Olympic Games - combines culture and innovation, excellence and inclusion.

The **Ufficio Scolastico per la Lombardia** (Regional Educational Office for Lombardy) is proud to have been selected to organize the forthcoming IOI which is held in collaboration with **AICA** (the Italian Computer Society) at the heart of the Lombardy Region.



The Italian delegation at IOI 2011 (Thailand) receives the Olympic flag

The International Olympiad in Informatics will take place in the glorious setting of **Sirmione** from 23 to 30 September 2012. This pleasant little town on the shores of Lake Garda is not only in a position to offer a wide range of opportunities for social and cultural activities, but is also able to provide a highly technological competition site and adequate accommodation facilities for whoever takes part in the event in whatever capacity. Sirmione's impressive surroundings will give participants the opportunity of visiting many more places of interest.

Eighty-two countries are scheduled to take part. Each participating country will compete with a delegation of four students, all winners of national selections, less than 20 years of age and not enrolled at universities. We expect some 1000 persons, including students, trainers and observers to attend. The event has a significant media potential both at national and at international level.

The competition itself will be held over a period of two days and will consist of two five-hour sessions. Tests will be evaluated automatically by means of a "correttore", i.e. a software developed ad hoc by a team of students and professors of the University of Pisa, capable of reporting the position of each participant in real time and point by point. A large screen placed outside the competition area (or a Personal Computer brought from home) will allow fans and supporters to follow their favorite contestants.

Students will stay at the Garda Village in Sirmione, but will compete at the Centro Fiera del Garda in Montichiari.

The event has also been thought out in such a way as to give participants an opportunity to visit the neighboring places of interest; to compare cultures and to share our customs. A full calendar of initiatives such as: cultural visits, parties, shows and theme dinners will entertain guests and create more opportunities of meeting - and connecting with - new people.

Students, organizers and accompanying adults will be able to benefit from the environment of Lombardy which, in the broadest sense, is characterized by the overall range and level of its cultural background. The specificity of Italian culture - a culture that places the individual at the center of his own life project, making him the protagonist of his own development and that of others - combines and represents the best of the aptitudes and inclinations that have developed in Italy, starting from the decisive contribution that the great masters - first and foremost Leonardo da Vinci - have made to our civilization. The contribution of the genius who senses undiscovered aspects, fosters perspectives within which problems and the world vision are reconsidered, pinpoints new facets and potential solutions; the contribution of him who places himself at the service of both small and great achievements, generating actions that presuppose originality and inventiveness. All of this can spur youngsters to develop a leadership that later will turn them into a model of integrity, sensitivity, awareness of their talents and provide them with a behavioral sense of measure.

To us, for this reason, the IOI event is inspired by **Leonardo da Vinci**. Leonardo is one of the major representatives of the union between science and humanism. He is the paragon of a many-sided genius, great architect, exceptional scientist and researcher, capable inventor in engineering and mechanics, passionate botanist, excellent painter and artist. To Lombardy - and to Milan in particular - Leonardo bequeathed an impressive cultural heritage.

The Last Supper, the beautifully restored painting kept in the Basilica of Santa Maria delle Grazie; the Atlantic Code, property of the Biblioteca Ambrosiana, one of Italy's major libraries and picture galleries, both for the richness of its collection and for its global cultural value; the living evidence of Leonardo's engineering and hydraulic genius can still be admired in the system of sluice gates, which he devised to regulate communications with the hub City of Milan, and the system of canals known as Navigli. All of which, together with the numerous architectural projects relating to the building of the Duomo di Milano, are only a few of the elements that testify to Leonardo's presence. Leonardo is also the inspiring genius behind numerous events and cultural sites of exceptional value such as the Museo del la Scienza e della Tecnologia, named after him.

Other than Milan and Leonardo, Venice is also a place of great attraction and of outstanding cultural importance. Because of the proximity of Garda's eastern territory to the Veneto, the Serenissima, as the Republic of Venice was known, has been chosen as the destination of a structured and thorough visit which the participants in the IOI might wish to under take.

In many respects, the primary goal of the IOI event is the enhancement of excellence.

In correlation with the IOI event, the Ufficio Scolastico per la Lombardia and AICA, together with Assolombarda and UNESCO, are launching an initiative whose central themes will be the enhancement of the culture of merit and the sharing of the conditions and of the tools through which meritocracy in our Country can be increased. It will consist in a day of debates and in-depth analyses on the enhancement of excellence, and an important opportunity of reflection on the major changes now taking place at cultural and social level, and will be addressed to the leaders taking part in the event. It will also be a good opportunity to revive the supremacy of merit of both the individual and of the system as a whole.



<http://www.ioi2012.org/>

International Conference in conjunction with the International Olympiad in Informatics 2012



YOUNG TALENTS & THE DIGITAL FUTURE

September 26th, 2012

Auditorium Gio Ponti Assolombarda, Via Pantano 9, Milano

(TENTATIVE PROGRAM)

Registration

10.00 *Opening session*

Alberto Meomartini, *Assolombarda President*
Cristina Tajani, *Councillor, Milan Municipality*
Irina Bokova, *UNESCO Director-General (tbc)*
Giulio Occhini, *AICA CEO*

10.30 *IOI: How & Why*

Giuseppe Colosio, *Chair IOI 2012*

10.45 *Young Talents in Europe: A Survey*

Plamen Nedkov, *IT STAR*

Discussants

Blagovest Sendov, *IOI Initiator*
Paolo Sestito, *Bank of Italy and Invalsi President*
ENI Representative

IOI champions

Giovanni Mascellani, *Italy*
Eduards Kalinichenko, *Latvia*

Moderator: Carlo Massarini, Scientific Journalist

Closing message

Francesco Profumo, *Minister of Education*

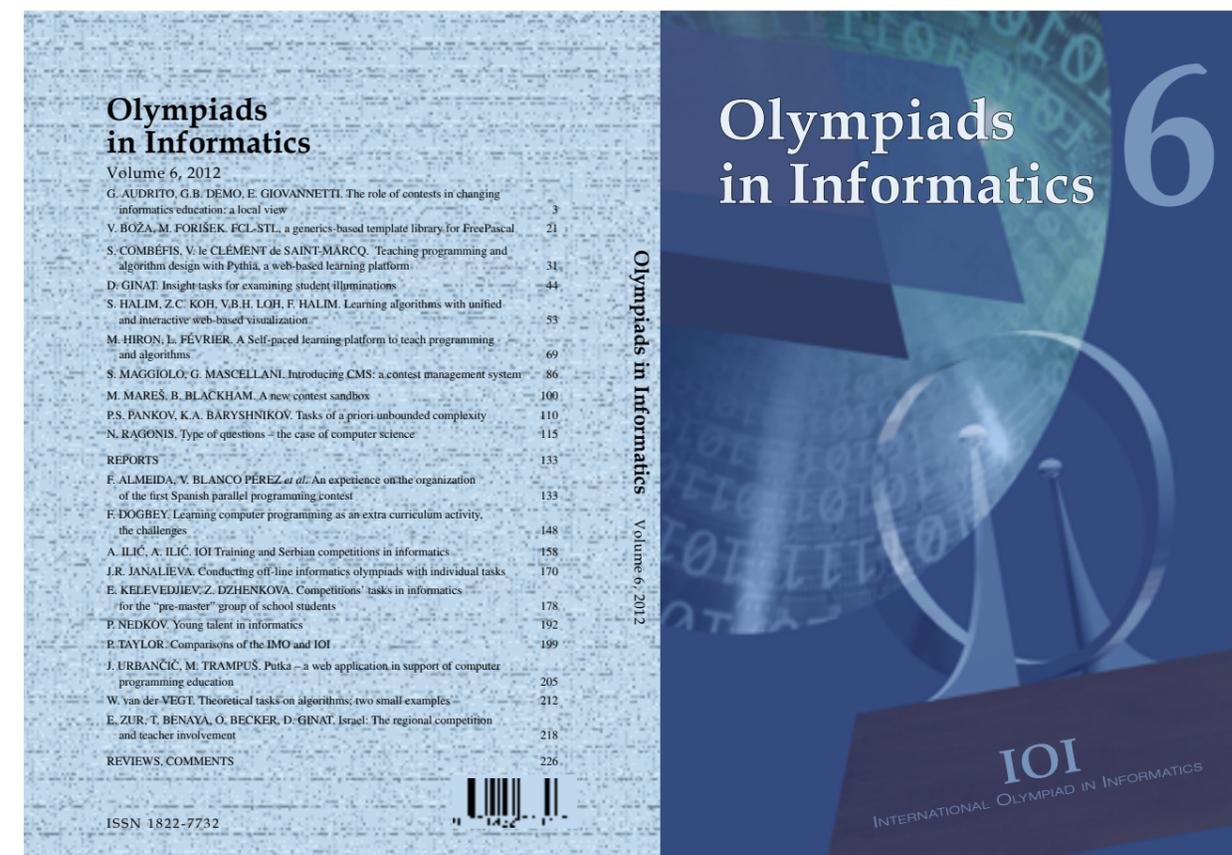
IOI related Publications



This report contains the findings of a Survey on Young Talent in Informatics initiated by Associazione Italiana per l'Informatica ed il Calcolo Automatico (AICA) in cooperation with the Regional ICT Association in Central, Eastern and Southern Europe (IT STAR). It is based on the experience of six European countries with remarkable results in identifying, assisting and growing talented youngsters in the process of competitions within the format of the International Olympiad in Informatics, and includes the views and perspectives of leaders of national bodies and IOI teams, academics, teachers, trainers, former and current contestants.

It addresses issues of attention to the IOI community, which have wider implications within education and beyond, and provide a platform for further consideration by a broader circle of educationalists, researchers, decision-makers, public and private organizations in Europe and worldwide.

For further information, please contact info@starbus.org



Available on-line at http://www.mii.lt/olympiads_in_informatics/contents.htm

MultiCulti

Salò, Lake Garda



Dorothy Hayden



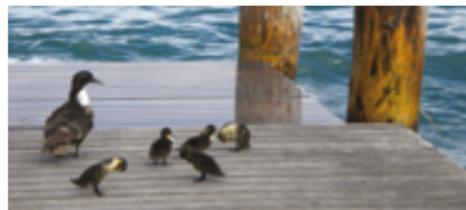
Have you heard of Salò on lake Garda?

Maybe the name rings a bell in association with Pier Paolo Pasolini's last film *Salò, or the 120 Days of Sodom*? Or, you might recall that it was the capital of Mussolini's puppet state, the Italian Social Republic from 1943 to 1945?

If you have not heard of it you might be interested to know that it is one of the most attractive towns in the marvelous Garda region and the province of Brescia, and a magnet for individual tourists.

Salò is located on a gulf bearing its name on the western side of Lake Garda at the foot of Mt. Bartolomeo, making it an ideal spot for hiking and water sports – swimming, rowing, windsurfing, yachting, ... It takes pride in having the longest lake promenade with a myriad of cafes, restaurants, ice-cream saloons and bars facing the lake. A good part of

the lungo lago is on stilts around the bay with ducks and swans between the moored yachts, drifting alongside the promenade and staring upwards at the leisure walkers in expectation of a nibble.



A "must see" event is the market held on Saturday morning and gathering crowds from the town and the countryside. The many stalls display a rich assortment of goods, ranging from foodstuff

(including on-the-spot prepared delicacies) to high-quality leather-ware.



The town offers a notable cultural tradition and if you stroll around for a while you will surely bump into the monument of Gasparo da Salò, the inventor of the violin, who was born here in 1540.

The Garda area is well-known for its lemon groves (one town is even named Limone), which provide for an authentic local production of cakes, chocolates, liqueurs and jams. When in Salò, don't miss to visit my favorite pastry shop Vassalli Pasticcerie for a lemon cake – simply delicious! Another tip for anyone who plans a future visit – have a meal at La Vela restaurant for excellent pizza and fish! But make sure your hotel reserves a table as the place is very popular among the locals. Salò is also known for the traditional fireworks-show to mark the end of the summer season and a good way to watch is to reserve well in advance a lakeside table at La Vela.



A ferry, docking near the central town square provides a link to the main settlements around the lake, an attractive way to explore the area.

If you are in Sirmione for the International Olympiad in Informatics you might consider the ferry as a means to reach Salò. Another possibility is to join the Salò tour for visitors, included in the IOI program on 27 September.

Impressions



Cover photos of the last 6 Autumn NL issues 2006 - 2011 <http://nl.starbus.org>

Newsletter - Calibrated for Creative Communications

Vol. 4, no. 3, Autumn 2006



From the Editor

http://www.scholze-simmel.at/it_star/wp-content/uploads/nl_3_06.pdf

Vol. 5, no. 3, Autumn 2007



Dawning No. 10

http://www.scholze-simmel.at/it_star/wp-content/uploads/nl_3_07.pdf

Vol. 6, no. 3, Autumn 2008



Bridges

http://www.scholze-simmel.at/it_star/wp-content/uploads/nl_3_08.pdf

Vol. 7, no. 3, Autumn 2009



Falling Colors

http://www.scholze-simmel.at/it_star/wp-content/uploads/nl_3_09.pdf

Vol. 8, no. 3, Autumn 2010



Time to Lead

http://www.scholze-simmel.at/it_star/wp-content/uploads/nl_3_10.pdf

Vol. 9, no. 3, Autumn 2011



DEFINING MOMENTS

http://www.scholze-simmel.at/it_star/wp-content/uploads/nl_3_11.pdf

Digital Forensics

Digital Forensics Techniques in Computer Crime Control

Giuseppe Mastronardi



Giuseppe Mastronardi is full professor of Computer Science at the Politecnico di Bari and teaches Information Security and Medical Informatics. His interests include biometric techniques for personal identification, data-security by means of cryptography and data-hiding techniques, bio-informatics and soft-computing applications to pattern recognition (signals and images). He works in the field of personal identification by voice, by retinal fundus and specially by 3D scanning face, in cooperation with government organizations.

Giuseppe is member of AICA and Chair of its Puglia section. He is the local organizer of the 7th IT STAR WS on Electronic Business II, on 3 May 2013 in Bari, Italy.

Abstract— Computer crime remains a burning issue, which could affect not just the success of the net economy. This paper takes a closer look at new investigative technologies and the Italian law in accordance with the European recommendations.

Keywords: Computer Crime, Digital Forensics, Legal Issues

I. INTRODUCTION

With the proliferation of multimedia data on the web, surveillance cameras in cities, and mobile phones in everyday life, we see an enormous expansion in multimedia data that needs to be secured to prevent illegal use, to be analyzed by forensic investigators to detect and reconstruct illegal activities, or be used as a source of intelligence. The sheer volume of such datasets makes traditional inspection of all data impossible. In recent years the multimedia community has developed new technologies and solutions for management of large collections of multimedia contents (video, images and audio), knowledge extraction, categorization and pattern recognition, indexing, retrieval and searching, browsing and visualization, modeling and simulation in various domains. But, due to the inherent complexity and the objective ambiguity of these data, the application of these techniques is not simple, yet the time is ripe to adopt these results for forensics and intelligence applications, and to improve security and control.

With the increase of computer crimes and, especially, with companies that have finally begun to denounce the crimes of which they are victims, it calls for a full implementation of this discipline, originated in 1980 by the FBI laboratory technicians.

Digital forensics is often mistakenly identified as a new “branch” of computer security. Undoubtedly, computer forensics is most known in respect to digital forensics; it is a broader science which studies the identification, preservation, protection, retrieval, documentation, and exploits any other form of computer data processing in order to be used in the legal process. A typical example is the so-called “trial court” which employs computers to rebuild a scene or an event using virtual reality techniques, so that we speak of “computer generated evidence”.

II. TRANSNATIONAL LAWS

Recommendation R (89)9 (September 9, 1989 of the European Council), introduced the indictable offenses into four main categories:

- unauthorized access to computer systems (Article 615 ter);
- defamation by Internet;
- possession and distribution of illegal content (protected material or pedo-pornographic content);
- violation of copyrights by Internet.

In July 2004 came into force the European Convention on cyber crime, signed in Budapest in November 2001, to effectively combat these crimes, whose spread is threatening the economic, financial, industrial and political balance of the States. Now in Italy the reference law that defines the use of results of forensic analysis in court is Law n.48/2008, known as the “Ratification Law of the Budapest Convention”.

In particular, national laws to address cyber crime are used to articulate the types of offenses in the following conduct:

Unauthorized access: as no access right to a system or a computer network in violation of security rules.

Unauthorized interception: interception of communications from or within a system or computer network, by technical means and without any right.

Damage to computer and attacks on the integrity of systems: as deletion, damage, deterioration or suppression of data or computer programs, without the right.

Computer sabotage: as input, alteration, deletion or suppression of computer data or programs or interference with computer systems, with the intention of impeding the operation of a computer system or a telecommunications system.

False information (spoofing or false identity): as input, alteration, deletion or suppression of data or computer programs, or any other interference in information processing, carried out in a manner or under such conditions as to constitute, under national law, an offense of falsification when the facts themselves were committed in respect of one of the objects of this traditional type of infringement.

Computer fraud: as input, alteration, deletion or suppression of data or computer programs, or any other interference in computer processing that influences the result and leads to economic or property damage to another person, made with the intention of obtaining an illegitimate economic advantage for oneself or for others (i.e. phishing: user-id and password intercepted by fraudulent email).

Pedo-pornographic images and personal information: as exploitation of children for profit by the disclosure of compelling images and personal information on Internet.

Unauthorized copy of a protected computer program: as reproduction, distribution or public communication of a computer program protected by law, without right.

Unauthorized copy of a topography: as reproduction without right of a semiconductor topography protected by the law, importation or commercial exploitation of a design or a product manufactured with the help of a topography protected by law.

Under this law in Italy, the Polizia Postale (as Telecommunication Police), in ongoing consultation with the relevant law enforcement agencies in the other states, carries out constant and de-localized investigation on the network. The issue of crime de-localization was simply solved with the criminal persecution by the state of the criminal’s nationality, regardless of where the crime was committed (an Italian criminal by the Italian law).

III. OPERATIVE TOOLS

These operations of intelligence require smart tools to enable the acquisition of the evidence without modifications. In fact, altering the date of file creation or date and hour of last changing or access, makes it difficult to obtain useful information from data recorded for forensic purposes.

Similarly, the Data Log files are of particular importance, in which all users movements are stored, while browsing on Internet. The providers are not only to proceed with the identification of users at the conclusion of the contract, they record on the log each access to the system, with the date, the time of link beginning and end, the network addresses, the subscriber identifier codes in the case of anonymous or pseudonyms use. This practice naturally responds to the needs of quality control services, access timing to the exact billing, and any verification of crime commissions, at the request of the court.

The information contained in logs and records must be given notice to the person, together with the different purposes of treatment (accounting, marketing, quality control), in order to help users to make free and informed consent.

The need for the user consent finalized to conservation or treatment of communication traffic data, requires cancellation or anonymity when each call is finished, unless the treatment is aimed at billing or justice purposes. Finally, the provider, as all holders of data processing,

needs to ensure that appropriate security measures to minimize the risk of destruction or loss, even accidental, of data, unauthorized access or treatment not allowed or not complying to the purposes of collection, but left uncertain as they are not clearly defined what are all the steps to prevent the damage, in terms of design, organization and costs. To this purpose, it must be kept in mind that the law is the mode of collection of personal data and requirements to establish the criteria against which to assess the quality of the data, which is another aspect of security (accuracy, relevance, completeness, with respect to the collection purpose).

Special tools become increasingly necessary to help draw useful information without affecting, especially during judicial seizure of digital evidence. Part of computer forensics is a fundamental safeguard of data on storage media placed under the constraint of the seizure, and therefore not available to the owner.

Data protection and the guarantee to the stability of the latter, the analysis of the operators in charge of storage devices uses certain methods to ensure and prove the exact correspondence of the content at any time of the analysis. To make this possible the data must be “frozen” as a precaution to prevent technological writings (even accidental) and ensure that the data remains the same.

To fulfill these obligations, in addition to the use of hardware or software that inhibit any writing on storage devices, algorithms are used to hash (usually MD5 or SHA1) to generate a sort of fingerprint of each file and/or of entire contents of the device, allowing to check the integrity at any time after the seizure.

Hardware devices that allow access to the disk read-only mode is called write blocker: through them one can read the data on the device, removing the ones of interest or through the forensic copy. The use of write blocker necessarily requires a computer and the capture rate depends on the performance of the machine used to perform the copy.

Another type of hardware tool is the copier whose purpose is to copy the disc bit to bit “suspect”(from seizure) to another disk, at the same time preserving the integrity for the write blocker. The acquisition speed copiers reach very high speed, often touching 5 GByte per minute and do not require the aid of a computer in order to be used.

From the software point of view, an excellent tool that prevents writing (and therefore also inadvertent modification of data on the device) is Linux: using the mount command makes it possible to mount the device read-only (not available on Windows systems, instead requiring a write blocker to access the source disk).

IV. SPECIAL SKILLS

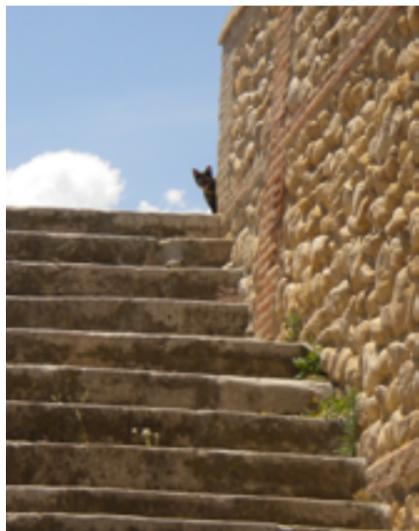
The term “computer forensics expert” is used to identify the professionals who work in the area of computer crime. There is no single definition included within the term “forensic”

- computer forensics experts engage to “preserve, identify, investigate and analyze the content stored in any media or storage device.” The activities are directed not only to all categories of computers, but any electronic equipment with a potential for data storage (mobile phones, smart phones, home automation systems, vehicles and anything that contains data stored).

Given the heterogeneity of the media our preference is the term “digital forensic expert.” Such an expert requires special skills, in particular to conduct the following investigations:

- Crime of forgery, unfair competition and false accounting reconstructed on the basis of digital documents;
- Violation of the rules on the processing of personal data in the corporation;
- Legal protection of corporate database;
- Contracts for the supply of services;
- Damages for defects of management software;
- Contracts for marketing and distribution of software;
- Challenge procedures, dispute resolution and reassignment of the domain name in case of unfair competition among entrepreneurs; responsibilities of the Registration Authority, the use of an inhibitory site, the provider’s responsibility, liability of the maintainer;
- Privacy and minimum measures of security for personal data in public and private health activities, free professional company to produce goods and/or services;
- Offenses of possession and dissemination of pedo-pornography;
- Offenses relating to the phenomenon of “phishing”;
- Terrorism.

AICA (the Italian Certification Authority for ECDL) is now



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planning a new certification with a European dimension on “digital forensics”, to be allocated in particular to law enforcement operators, but also to professionals experts in courts and persecutors’ offices.

INTERNET REFERENCES

- <http://www.forensicswiki.org/>
- <http://www.cfitaly.net/> – Computer Forensics Italy
- <http://www.caine-live.net/>
- <http://forensicsbypila.blogspot.com/>
- <http://www.cybercrimes.it>
- <http://www.iisfa.it/index.html>
- <http://forensics.typepad.com/>
- <http://www.nannibassetti.com/>
- <http://www.truecrypt.org/>
- <http://en.wikipedia.org/wiki/Steganography>
- <http://sfdumper.sourceforge.net>
- <http://diit.sourceforge.net/index.htm> ■

Call for contributions

7th IT STAR WS on Electronic Business II

IT STAR will convene its 7th WS on eBusiness on 3 – 4 May 2013 in Bari, Italy as a follow-up of the 2010 IT STAR conference on eBusiness in Zagreb, Croatia - <http://www.starbus.org/ws5/ws5.htm>

The conference will provide a forum to a representative mix of experts from academia, business enterprises and government to investigate the state, problems and challenges within such topical areas as:

- **Innovation in business processes**
- **Maximizing the impact of e-Business in periods of crisis**
- **Legal framework and security issues**
- **e-Signature & e-Identity**
- **e-Invoicing, e-Procurement**
- **e-Skills**
- **Technological Interoperability**
- **Networked Economy**
- **Obstacles to eBusiness**

Individuals and organizations wishing to share their experience and views are welcome to submit proposals to [<nedkov@utanet.at>](mailto:nedkov@utanet.at) for topics, papers and speakers by **5 November 2012**.

On the basis of these proposals a preliminary program will be published in the Winter issue of the Newsletter with concrete instructions for the submission papers and presentations.

The 7th IT STAR WS will be organized within a similar format and arrangements as previous IT STAR conferences and will be hosted by AICA and its section in Puglia. ■

IPTS News

Call for Participation

The European Commission’s Joint Research Centre - Institute for Prospective Technological Studies (JRC-IPTS, Information Society Unit) will organize an international conference

The Dynamics of Media and Content Industries Brussels, 25-26 October 2012

bringing together a highly diversified set of expert speakers from industry and academia in Europe and the USA. It will present the results of the ten “Media and Content Industries” studies led by the IPTS (<http://is.jrc.ec.europa.eu/pages/ISG/MCI.html>) and will put them within the context of EU policies.

The following topics will be addressed:

- The rocky road to digital media worlds: toward the 3d wave?
- The changing nature of competition in the ecosystem
- Looking for business models
- The funding of creation
- Asset management in the digital age: beyond copyright
- Policies for a media digital world

Detailed information is posted at <http://is.jrc.ec.europa.eu/pages/ISG/MCI/conference.html>

Registration is open and available from the link above - attendance is free but limited to 100 participants on a first registered basis. ■

ICT in BRICS

Jean Paul Simon



Jean Paul was until recently Senior Researcher at the Information Society Unit of IPTS. Currently he is involved in public policy consulting.

Background

IPTS launched a tender for research focused on R&D in ICT sectors in India, China and Taiwan, in order to gain a better understanding of major ICT R&D capabilities in those parts of the world. This research exercise led to three further reports on China, India and Taiwan, each one including a dataset and a technical annex. Based on these country reports and further research, IPTS prepared a first report focusing on Brazil, India and China. This report pro-

vided the basis for a series of articles for Communications & Strategies. A workshop was organized in Johannesburg in October 2011. The workshop, desk research and cooperation with leading experts in the field provided the basis for the papers on South Africa and Russia.

An intensive process of redistribution of production across the world is taking place. The BRIC (Brazil, Russia, India, China) countries are proving to be the major engine of the global growth. They were far less impacted by the financial and economic crisis than developed economies or recovered more quickly. The aim of the research is to take a closer look at the ICTs landscape in these countries. The first report documents the size of the ICT sector for each of the three countries covered and assesses their R&D expenditures.

It is widely acknowledged that the growth rates for these emerging economies have been far above average during the last decade, and have exceeded those of the more advanced countries (EITO 2011). Consequently these four countries are driving most of the world’s GDP growth.

Brazil is the world’s seventh largest economy by nominal GDP (US\$ 2.090 trillion) and the ninth largest by purchasing power parity (US\$ 2.172 trillion). China and India are among the fastest growing economies in the world. China’s GDP has achieved more rapid growth than most other countries. India is the eleventh largest economy by nominal GDP and the fourth largest by purchasing power parity, having achieved an impressive growth rate over the last two decades. On a purchasing power parity (PPP) basis, China is the second largest economy in the world after the US, representing about 41.56% of total EU27 (World Bank, 2009). Russia is ranked 7th in terms of GDP (PPP: \$2.414 trillion)

ICT in Brazil, India, China

In 2010, BRIC countries accounted for 13% of global demand, with spending of about € 328 billion in ICT (EITO, 2011). Therefore, they are becoming major players, not just as plain ICT users/ importers but also as producers of ICT goods and services. China has become the world’s largest producer of ICT products (exports of ICT increased four-fold between 2004 and 2008, though many of these are re-exports from other Asian countries).

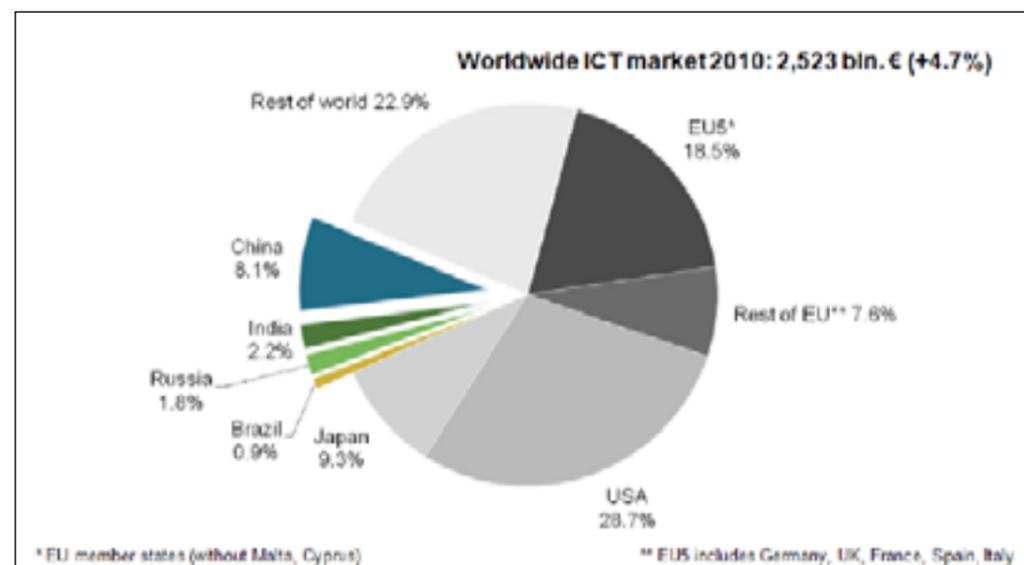
They are also becoming major players in the entertainment and media markets. According to PricewaterhouseCoopers (Global Entertainment and media outlook, 2011), Brazil, India and China will be the fastest growing leaders with a projected compound annual increase of 11.4%, 13% and 11.6% respectively between 2011 and 2015 (versus US: 4.7%, EMEA: 5.2%).

Table 1 shows ICT spending for selected emerging economies for the period 2000-2007 (OECD 2010): Brazil, Hong Kong, China, Chinese Taipei, India, Russia, and South Af-

¹ Proceedings forthcoming.

rica -for different segments. The growth of the ICT markets in Brazil, India, and China is remarkable. This is likely to continue. In 2009, 46% of Internet users (1.8 billion global Internet users) concentrate in five countries, the top Internet markets: China, USA, Brazil, India, Russia, four are BRIC countries. Like in the case of China, with IT companies like Tencent and Baidu, Russian IT companies managed to retain a strong advantage over Google measured by the number of users.

Figure 1: Share of BRIC countries in the 2009 global ICT market



Source: EITO in collaboration with IDC, PAC and Idate, published in EITO (2011)

R&D expenditures

This impressive growth of the ICT market is translated into R&D expenditures and output, for instance, China's invention output overtook that of both the EU and the US, and comprised more than 44% of all Asian patent applications in 2007. Innovative capability in Asia has grown, the dynamics in terms of catching up are strong. Asian countries are increasingly present in the ICT R&D global landscape.

However, there is still a gap with developed economies and there are local differences. If one takes a look at R&D expenditures (all sectors), these countries are still at the early stages in their investments in R&D. China is closing the gap with the EU27 quicker and had the fastest growth in R&D intensity (i.e. GERD/GDP ratio: annual growth rate of 22.8%) between 2000 and 2008 (Unesco 2010). Brazil, India, and South Africa are still lagging behind. Korea, Taiwan and Singapore are above the OECD average for R&D gross expenditure (percent of GDP). Driven essentially by China, India and the Republic of Korea, Asia's world share of GERD rose from 27% to 32% between 2002 and 2007, largely to the detriment of the Triad (European Union, Japan, USA) (Unesco 2010). China plans to raise the GERD/GDP ratio from 1.54% (2008) to 2.5% by 2020 (Unesco 2010).

New patterns of trade: toward new forms of cooperation?

During the last decade Brazil, India and China went through major transformations that yielded impressive results, especially in the ICT sector. Their share of the global demand will expand especially taking into consideration their huge opportunities to further grow their respective domestic markets.

These countries play an increasingly important role in international trade. China has become the largest country in the world in international trade of ICT products playing a strong role in trade with other BRICS countries such as Brazil and South Africa. Russia shares with South Africa (OECD: Kelly, 2011) a deteriorating "revealed competitive advantage" in communications trade.

Despite, the achievements of the pioneering firms from India and China which have become global players, the ICT sector is dominated by foreign companies. EU firms operate in Brazil (mostly from the telecom sector: Telefonica, Portugal Telecom, Telecom Italia...), India (Ericson, Telenor, Vodafone, Siemens, Nokia...), China (Alcatel-Lucent, Nokia Siemens Network, Orange FT Group, Sony Ericson, Telefonica...).

Innovative capability in Asia is growing and the dynamics are strong. Asian countries are increasingly present in the ICT R&D global landscape. This is still not the case for Brazil and South Africa displays the worse situation. Beyond the substantial progress achieved, and the accompanying policies, the level of R&D expenditure remains modest for China. Comparing with developed countries, the technical innovation ability of ICT industry is still weak in the three countries even if uneven.

References:

Jean Paul Simon, (2011) The ICT Landscape in BRICS Countries: Brazil, India, China, JRC Scientific and Technical Report, 2011. <http://ftp.jrc.es/EURdoc/JRC66110.pdf>

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Alison Gillwald, Jean Paul Simon (2012), The ICT Landscape in BRICS Countries 4: South Africa. In IDATE: Communications & Strategies 86

Valentin Makarov, Stefan Schandera, Jean Paul Simon (2012), The ICT Landscape in BRICS Countries 5. Russian Federation. In IDATE: Communications & Strategies 87. Forthcoming.

Forthcoming IT STAR Events

7th IT STAR WS on Electronic Business II



Teatro Margherita: source - italianvisits.com

AI CA and its section in Puglia will host this IT STAR event, which will convene on 3 May 2013 in Bari, Italy, and will be followed by the IT STAR Business meeting on 4 May. The Conference is a follow-up of the highly successful IT STAR Conference on eBusiness, held in November 2010 in Zagreb, Croatia.

Plans are to organize the event at the Bari Polytechnic or in an ancient hall of the Province Council of Bari, on the waterfront. At the same time the usual festivities to commemorate St. Nicholas as the city's patron saint begin, ending with the historical pageant "La Caravella" on the evening of May 7 and the statue of the saint displayed on a boat the morning of May 8. The organizers will have a cultural program for the conference participants.

A call for contributions is contained on p.10.

2014 IT STAR Conference on History of Computing

The John von Neumann Computer Society has invited IT STAR to host a conference on History of Computing in the IT STAR region, in Szeged. Details will be communicated in a forthcoming issue of the Newsletter.

CEN WS on ICT Skills

CEN Workshop Agreement (CWA) 16458 "European ICT Professional Profiles" is now published and freely available

at <http://www.cen.eu/cen/Sectors/Sectors/ISSS/CWA-download/Pages/ICT-Skills.aspx>

This is the latest of a series of CWAs, which were developed within the framework of CEN's WS on ICT Skills and also available on the CEN website.

Other Events

The European Conference on Learning Innovations and Quality (LINQ) will convene on 23 October 2012 in Brussels, Belgium. Check <http://www.learning-innovations.eu> for the latest news.

MS News & Events

Croatia

The website of our Croatian Member Society displays information on project ICT train, which is funded by the European Commission. The main project objective is to help ICT associations in Bulgaria, Croatia, Romania and Turkey understand the Information and Communication Technologies related EU regulations and requirements that influence their business and the companies to meet in order to do business in the EU.

The curriculum and training is organized in 4 blocks:

- Environment, Health & Safety
- Horizontal Issues, IPR, Funding Programmes, Consumer Acquis Safety
- Electronic Communication and Telecommunications
- Information Society related ICT Acquis

For more information please check <http://www.hiz.hr/ict-train/en/index.html>

Czech Republic

The 39th International Conference on Current Trends in Theory and Practice of Computer Science will take place from 26 to 31 January, 2013 in Špindlerův Mlýn, Czech Republic. For detailed information please check <http://www.sofsem.cz/sofsem13/index.php>



IT STAR Post-conference papers

6th IT STAR WS on Digital Security – www.starbus.org/ws6



The 6th IT STAR Workshop on Digital Security was held on 30 March 2012 in Bratislava, Slovakia and most of the presentations are uploaded at www.starbus.org/ws6. A report on the Panel on Internet Privacy was published in the Summer 2012 issue of the NL (Vol.10,no. 2), where we also published an article on the Information Security Job Profile.

We are pleased to inform our readers that three post-conference papers were submitted after the Bratislava event as follows:

Hungary

The Internet of Things

The concept behind the Internet of Things (IoT) has shed light to new aspects of trust and security. Being a young trend, yet complex and manifold, IoT poses a variety of trust and security issues – some of which are yet unseen – which are to be understood and effectively handled in order to establish its social acceptance in future.

A ppt presentation on this was delivered at the 6th IT STAR WS on Digital Security and the post-conference paper, authored by Dániel Petró and György Vesztergombi is now available (as submitted) at http://www.scholze-simmel.at/starbus/ws6/wp-content/uploads/pcp_Hungary.pdf.

Lithuania

Development and Certification of Skills for European Educators Focused on Safe ICT and Cyber Threat Prevention

The Lithuanian Computer Society (LIKS) as the ECDL Foundation's national operator has launched the Endorsed Partner Program e-Guardian in 2009. The main purpose of the program is to directly help getting the needed knowledge to protect children from dangers of Internet exposure. This is especially important for employees of educational

institutions, therefore five partners from Lithuania, Latvia, Germany and Switzerland started in 2010 with the new Leonardo da Vinci project seeking to help European educators to acquire more knowledge about the Internet threats and the measures how to overcome these threats. The paper, authored by Renata Danieliene and Eugenijus Telesius, is published (as submitted) at http://www.scholze-simmel.at/starbus/ws6/wp-content/uploads/apie_eg-guardian_EN-straiapsniui-v5.pdf.

Slovakia

National Strategy for Information Security

With the development and use of ICT, it is necessary to address and solve problems connected with privacy and valuable state asset protection and set the border of what is allowed. The initial document dealing with this area in Slovakia is the National Strategy for Information Security (NSIS), adopted by Resolution No. 570/2008 of the Government and creating a wide platform to deal with legislative, institutional and executive issues. The key objective of this document is to create suitable conditions for consistent implementation of directives, regulations and international agreements, such as the United Nations Security Council resolutions, regulations and general decisions of international institutions, and specifically EU resolutions and those of particular states. The document provides a base for problem solving in the area of coordination and cooperation of key subjects and increases the awareness, competence and education in the area of information security, creating a secure environment and encouraging international cooperation. Special attention is paid to the development of a suitable legislative environment, standardization activities and organization of national exercises as protection against cyber threats, and assuring the security and protection of citizens and businesses in the on-line environment.

NSIS is defined as a summary strategic document involving strategic aims, priorities and specific tasks with defined responsible subjects and deadlines. The actual tasks resulting from the strategic aims and priorities of information security in Slovakia are described in detail in further documents focused on particular areas. The most important of them are resolutions with a time horizon 2008 – 2013. Further strategic tasks are developed in the document “Action Plan for the National Strategy for Information Security in the Slovak Republic” for 2009 – 2013 and Digital Agenda for Europe 2010.

A ppt presentation on the Slovak National Strategy for Information Security was made at the 6th IT STAR WS on Digital Security - <http://www.scholze-simmel.at/starbus/ws6/wp-content/uploads/Hochmann.pdf> - and is now also available as a paper (as submitted) at http://www.scholze-simmel.at/starbus/ws6/wp-content/uploads/pcp_Hochmann.pdf, authored by Ján Hochmann and Petra Hochmanová. ■



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 pro-motes 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

- 6th IT STAR WS on Digital Security - <http://www.starbus.org/ws6>
- IPTS - IT STAR Conference on R&D in EEMS - <http://eems.starbus.org>
- 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/ws2/ws2.htm>
- 1st 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 5th and 6th FP <http://www.starbus.org/download/supplement.pdf>
- Joint IT STAR – FISTERA Workshop on ICT and the Eastern European Dimension

Periodicals

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

Web-site

www.itstar.eu

IT STAR Member Societies

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