Newsletter - *Calibrated for Creative Communications*

Vol. 11, no. 4, Winter 2013/2014

Make a Wish

Our Winter 2013/2014 NL issue offers a medley of topics related to primary issues of the ICT agenda in the IT STAR region and Europe.

These include:

- GÉANT: Advancing research and education collaboration across Europe, by *Zoran Stančič*, Deputy Director-General, EC DG CNECT
- ICT Innovation in the EU, by *Marc Bogdanowicz*, Action Leader, IPTS - Seville
- John von Neumann: Past and Present, by *Balint Domolki*, Honorary Chairman of JvNCS, Hungary
- MultiCulti: The New Year's Concert, by *Dorothy Hayden*, IT STAR NL Columnist
- Highlights of KICSS'2013, by *Andrzej Skulimowski*, President of the PBF, Krakow, Poland
- SME ICT Capability, by *Marian Carcary*, IVI - Maynooth, Ireland, and more.

We hope you will enjoy the Winter issue of our Newsletter and take this occasion to thank you for having been with us for the 2013 Journey.

May your wishes for 2014 come true,

Plamen Nedkov
IT STAR Chief Executive and Newsletter Editor

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GÉANT - *Advancing research and education collaboration across Europe*[11]

Zoran Stančič

Since 2004 Dr Zoran Stančič has been Deputy Director-General in the European Commission, initially in DG Research and currently in DG Communications Networks, Content & Technology. Before that he was State Secretary for Science at the Ministry of Education, Science and Sport in Slovenia.

With European Commission support spreading over three previous European Framework Programmes for Research and Technological Development and entering now the new Horizon 2020 programme, the history of the Multi-Gigabit European Academic Network can be seen as the history of the visionary policy and long-term commitment of the European Commission in the area of ICT infrastructures for e-Science.

GÉANT, the high-speed pan-European research and education infrastructure has long been considered the most advanced research and education network in the world. Co-funded by the European Union and the European National Research and Education Networks (NRENs), and operated by DANTE, since its launch in November 2000 GÉANT has transformed European research and has helped put Europe at the heart of global research.

Neelie Kroes, Vice-President of the European Commission responsible for the Digital Agenda for Europe says: "By bringing together the brightest minds in the world GÉANT not only benefits Europe's competitiveness but it is also boosting collaboration between researchers on a global scale.»

Today GÉANT is a collaboration between 41 partners: 38 European NRENs, DANTE, TERENA and NORDUnet (representing the five Nordic countries). In total, the project represents 43 NRENs from Europe reaching over 50 million users at 10,000 institutions. It provides high-speed connectivity and associated services to research in areas such as high-energy physics, environment, space, medicine, social sciences and humanities. It is also the most developed hub connecting all world's research and education networks.

1 The views expressed in the article are the sole responsibility of the author and in no way represent the view of the European Commission and its services.

EDITORIAL POLICY

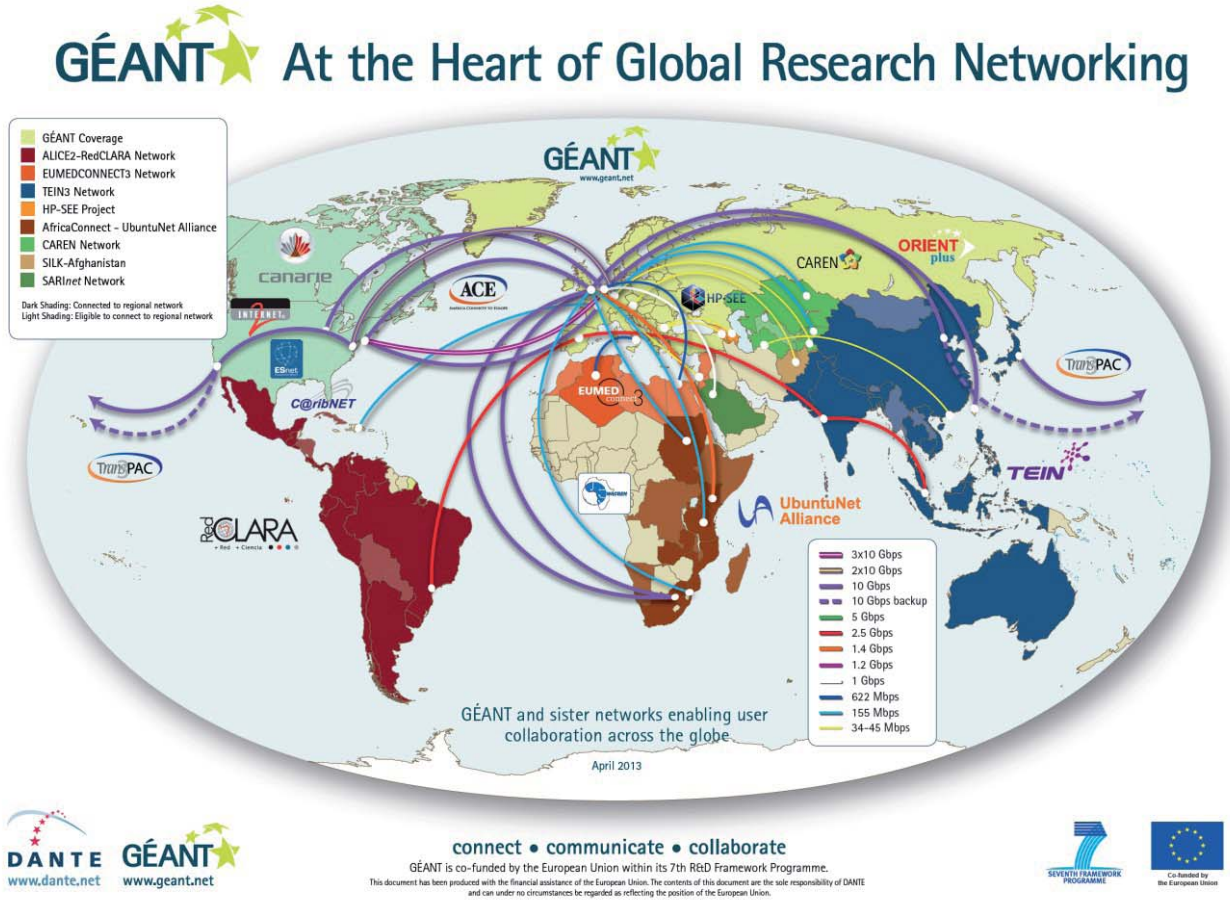
This Newsletter maintains a world-class standard in providing researched material on ICT and Information Society activities from the perspective of Central, Eastern and Southern Europe (CESE) within a global context. It facilitates the information and communication flow within the region and internationally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

The stakeholders whose interests this newspaper is addressing are

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

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

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



GÉANT's worldwide connectivity 2013

Over 1000 Terabytes of data are transferred across the network every day.

The GÉANT network underpins some of the world's largest and most data-intensive research projects. With a trunk capacity of 500Gbps (gigabits per second) and a network designed to support up to 8Tbps (terabits per second), this network is considered a driver of European growth in the fields of advanced research and education. Its cross-border reach allows effective collaboration across the region on projects vitally important to the European Union.

GÉANT offers a wide range of networking services tailored to users' needs: IP services (including IPv6) and bandwidth on demand (BoD), test beds and virtualised resources. The portfolio of value added services targeted at the research and education community includes:

- eduroam® - a global service enabling people from participating institutions to easily obtain internet connectivity across campus and when visiting other participating institutions;
- eduGAIN–an identity inter federation service enabling trustworthy exchange of information between the GÉANT Partners' federations;
- eduPERT – a focused performance enhancement resource to help troubleshoot end-to-end user applications;
- perfSONAR – a tool to monitor availability and performance to support national and international projects.

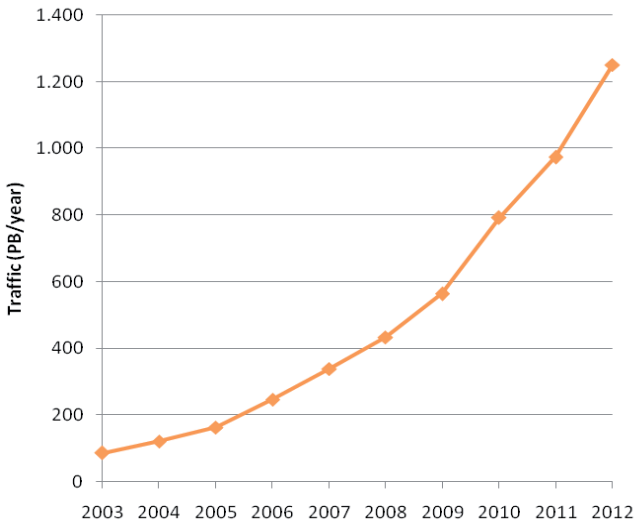
The European Commission currently provides funding for the GÉANT network of € 41.8 million.

Preparing for the future

The volumes of data being produced, shared and analysed is increasing exponentially, from fields as diverse as DNA sequencing, environmental monitoring, fusion, astronomy and particle physics. In order to deal with such a massive increase in data that research networks will have to support in the coming years,GÉANT and the NRENs are continuing to prepare for the future.

For example, the Large Hardon Collider (LHC) at CERN generates around 30 petabytes of data every year, and the rapid distribution of this data to computing centres around the world for analysis is vital to the success of the LHC experiment. GÉANT, together with its NREN partners are essential to this fast and secure data transmission, providing a high-speed, pan-European managed network with global links.

The Square Kilometer Array (SKA) telescope is a further demonstration of the exponentially growing need for connectivity between researchers in Europe and their colleagues across the world. Once operational in 2020 the SKA is expected to generate over 900 petabytes of data every day.



NREN annual traffic flows, 2003-2012

To support this growing "data deluge", GÉANT and the NRENs are dramatically increasing their use of dark fibre infrastructure. Dark fibre can engineer 'future-proof' networks, sustainable against the inevitable demand for greater bandwidth at less cost. Using dark fibre allows scaling up the network capacity from several megabit to several gigabits per second at marginal costs.

This year (2013), the aggregate length of dark fibre used internally by NRENs in the GÉANT region exceeds 138 000 km, up by more than 10% compared to 2012. Cross-border fibres (interconnecting different countries and NRENs) are also an important feature. By increasing capacity of cross-border links, GÉANT and the NRENs are working to ensure that geographical boundaries are no longer a barrier to effective cooperation in research and education.

Currently NRENs provide over 390 Gigabits/second of cross-border connectivity for international collaboration, with another 120 Gigabits/second planned. GÉANT has led the advance of international cooperation in research andeducation networking by helping to bring down barriers, changing the way of research networking and opening up new opportunities to users.

GÉANT in the South/East Europe

Despite the positive impact of GÉANT's development, the digital divide remains a real issue for many NRENs in Southern and Eastern Europe. Capacity and functionality is still focused within Northern and Western Europe and a significant effort and investment is needed to match that focus across GÉANT's geographic spread.

NRENs in parts of Europe may need more assistance to promote and facilitate the uptake of GÉANT services, to support specific user applications (e.g. in education and health) and to provide training and practical experience for NREN staff.

In order for knowledge creation to flow across the digital divide, unconstrained by distance or national boundaries, GÉANT and the NRENs are working hard to address these issues. A dedicated GÉANT team is devoted to assisting those in need of this type with a number of support activities under the current EU-funded project.

The GÉANT 2020 vision

In a competitive economy, high-speed networks such as GÉANT give a comparative advantage. Everybody, wherever they are, should be able to access data and resources: whether at home, roaming in another country , visiting another institution, or while on the road.

To ensure European research networking continues to innovate and support the research and education community's needs, the European Commission commissioned a report from an independent group of experts to provide a vision for GÉANT 2020 future and an action plan. The report, endorsed in October 2011 by Vice-President Neelie Kroes, outlined the vision of GÉANT as the 'European Communications Commons' where talent anywhere is able to collaborate with peers around the world and have instantaneous and unlimited access to any resource for knowledge creation, innovation and learning, unconstrained by the barriers of the pre-digital and present digital world. The report became a reference document for the planned research and education networking activities in Horizon 2020.

GÉANT's vision builds on its reputation for networking excellence, driving knowledge creation, innovation and learning and supporting the move towards Europe 2020's goals. ■

Boosting ICT Innovation in Europe?

Marc Bogdanowicz

Marc is Action Leader in the Information Society Unit, IPTS – Seville, Spain

For two decades, EU policies and scientific evidence indicate clearly that ICTs are important for growth, employment[1] and productivity[2]. On the one hand, technological progress in ICT-producing sectors is an im-

1 For a recent IPTS summary: Sabadash, 2013. ICT-induced Technological Progress and Employment: a Happy Marriage or a Dangerous Liaison? A Literature Review.
Available at: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6620.
2 For a recent IPTS summary: Biagi, 2013. ICT and productivity: a Literature review. Available at: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6719

portant driver of growth, as evidenced by its role in the productivity acceleration observed in the late 90s. On the other hand, ICT-enabled innovation in ICT–using sectors has provided the base for permanent and widespread growth-enhancing effects of ICT adoption throughout the economy.

The Commission's "Digital Agenda for Europe" (DAE) contains 7 pillars, meant to "reboot the EU economy" and enable Europe's citizens and businesses to get the most out of digital technologies. In its Pillar V, on Research and Innovation, the DAE firmly states that the best research ideas must be turned into marketable products and services, in order to bridge the "ICT Innovation Gap".

In turn, the long-expected growth of ICT-innovative companies in the EU27, in particular young SMEs, relies on the creation of adequate framework conditions. If those framework conditions are set rightly, ICT-innovative companies will grow and support directly job creation and economic growth.

These above mentioned three issues - ICT innovative production and use, the ICT innovation gap, and the growth of innovative companies - are at the core of the policy and of the present IPTS research project EURIPIDIS which will look at the respective situation and development conditions of all types of companies from early start-ups and spin-offs to large multinationals within the context of the Digital Agenda for Europe and of the ICT priority of H2020.

Beyond the above-mentioned two references on productivity and employment, the IPTS has started publishing a new series of reports, focused on ICT Innovation. In particular, it has issued a study[3] documenting the existence of innovation gaps between the EU and its main competitors in specific ICT sub-sectors – namely web services, industrial robotics and display technologies – and to explore the role of government policies in Europe's future needs for innovation in information and communication technologies (ICT) through a comparison with the USA and Asian countries.

The analysis shows that rather than there being a simple innovation gap with the EU lagging behind the USA, a more nuanced picture emerges in which firms in different countries have strengths in different sub-sectors and in different parts of the value chain. For instance, European firms are ahead of the USA in robotics for civilian uses (industrial and service robots), while US firms have been more successful in developing military robots. US companies have been the most innovative in web services. Meanwhile, Asia is much stronger than both the USA and the EU in flat panel displays of all types, used for mobile phones, tablets, computers, TVs and other consumer electronics devices. Annual global revenues for the three sub-sectors show their relative significance, with web services estimated at about €70 billion, flat panel displays worth about €75 billion and robotics valued at about €19 billion.

A second important observation is that generally there are strong contrasts in the difficulties of a start-up between the different technological sub-sectors in ICTs, reflected by the position of the start-up in the overall value chain for the final product. Enabling technologies in new materials, for example OLEDs or e-ink, which emerge early on in the value chain differ from a product assembled from existing technologies, like the one assembled by Apple, for example. For a start-up, influencing the whole value chain with a basic innovation or change at the start of the value chain for an ICT product or service is much harder than coming in at the end of the value chain. Firstly, the new technology and its maker must influence all that comes later both in terms of players and of their technologies. And secondly, early value chain innovation challenges major industry investments in the upstream value chain sections, which tend to be capital intensive due to their high volume – investors therefore hope that these investments will be long-term. For example, though OLEDs did not expand much in market share between 2009 and 2012, OLED screens of all sizes suddenly started to appear everywhere early in 2012, i.e. when the preceding TFT-LCD technologies had been fully exploited and the industrial investments amortised.

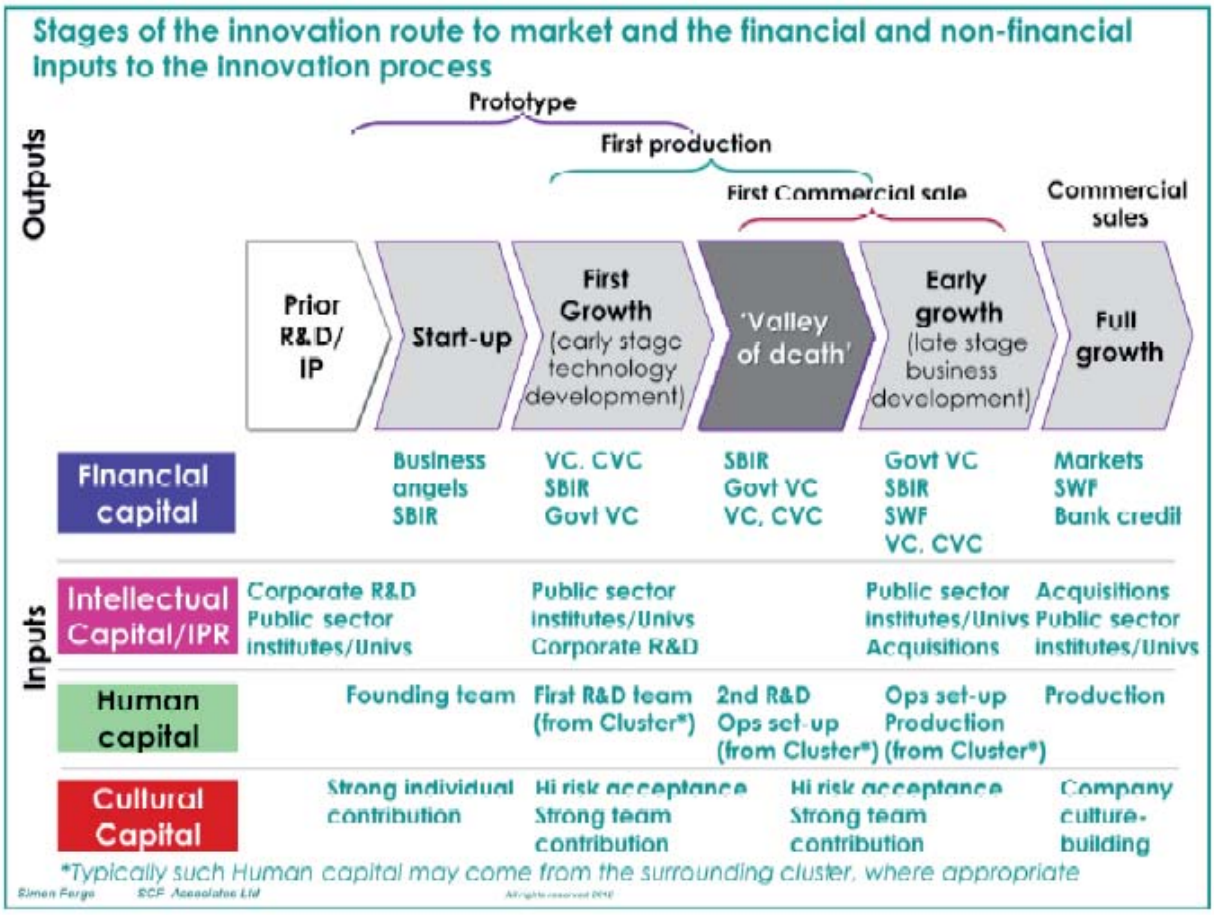
The case studies analysed show that very different factors proved to be essential for corporate success. There is therefore no one policy intervention that could improve Europe's innovative performance but rather a combination of several is needed:

- First, successful innovation depends to some extent on excellence in education and strong and active links between knowledge generation, knowledge exchange and knowledge exploitation (i.e. between universities and firms). From the US experience we know that Stanford University has had a tremendous impact on the emergence of high-tech companies in Silicon Valley, starting with Hewlett Packard all the way to Google.
- Second, to increase the return to these policies, it is necessary to create an innovation friendly environment: low administrative costs, tolerance towards business failure, a friendly business climate, and a large and integrated market (including venture capital).
- Finally, the public sector can provide important financial (e.g. SBIR type instruments, which was crucial in the case of iRobot) and non-financial support. As for the latter, cluster-generating policies have been shown in several case studies to be important.

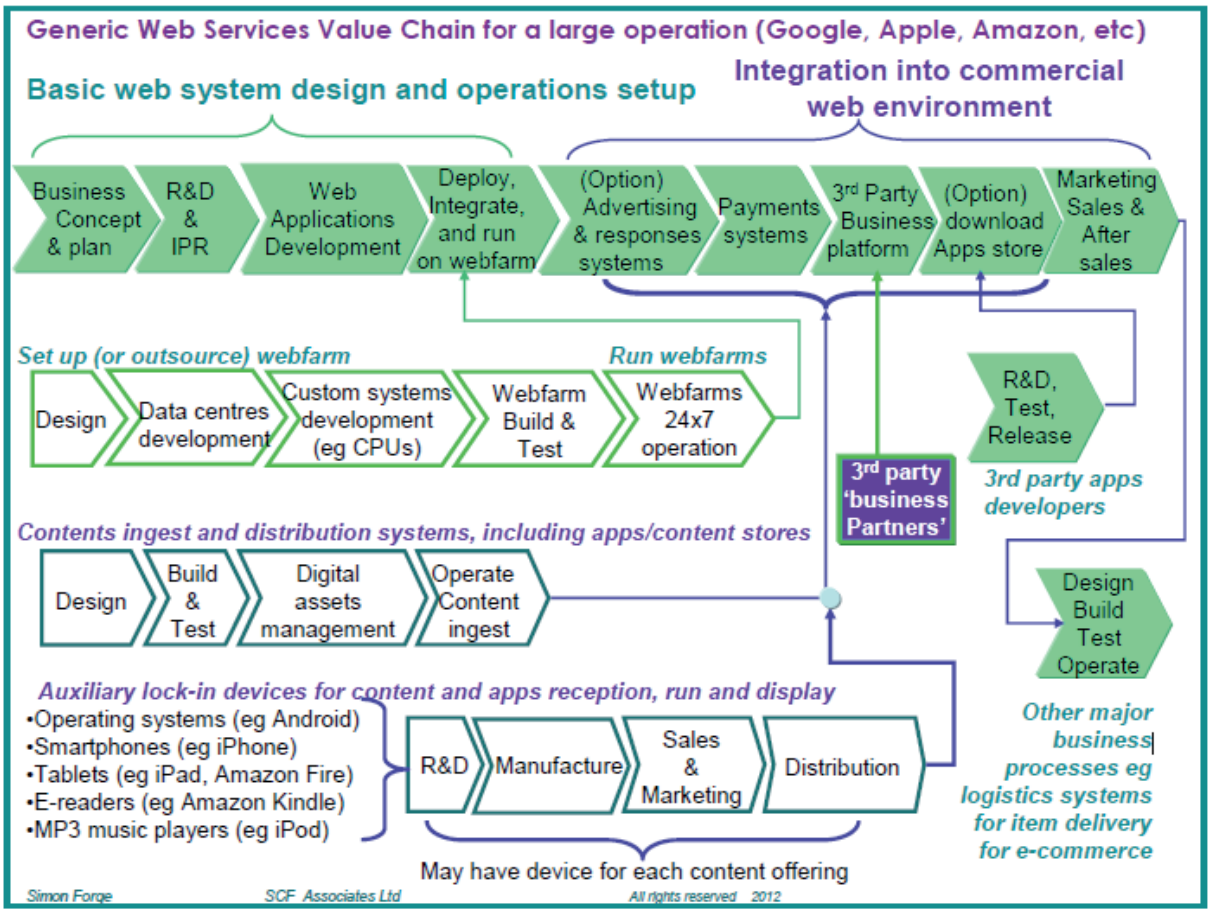
This report, together with several past studies and those that will be produced in the coming months are available at: http://is.jrc.ec.europa.eu/pages/ISG/innovation.html

3 Forge, Blackman, Goldberg and Biagi, 2013. Comparing Innovation Performance in the EU and the USA: Lessons from Three ICT Sub-Sectors. Available at: http://ipts.jrc.ec.europa.eu/publications/pub.cfm?id=6223

The inputs to the innovation process, p.33 in the report:



Extract from p.106: The Web Services value chain: web farms requires the largest capital investment



John von Neumann (1903-1957)

On the occasion of his 110 Anniversary

John von Neumann: Past and Present

Balint Domolki

Dr. Domolki participated in the building of the first electronic computer in Hungary, held several leading positions in the software industry and represented Hungary in various IFIP bodies. He is Honorary Chairman of the John von Neumann Computer Society and its representative to IT STAR.

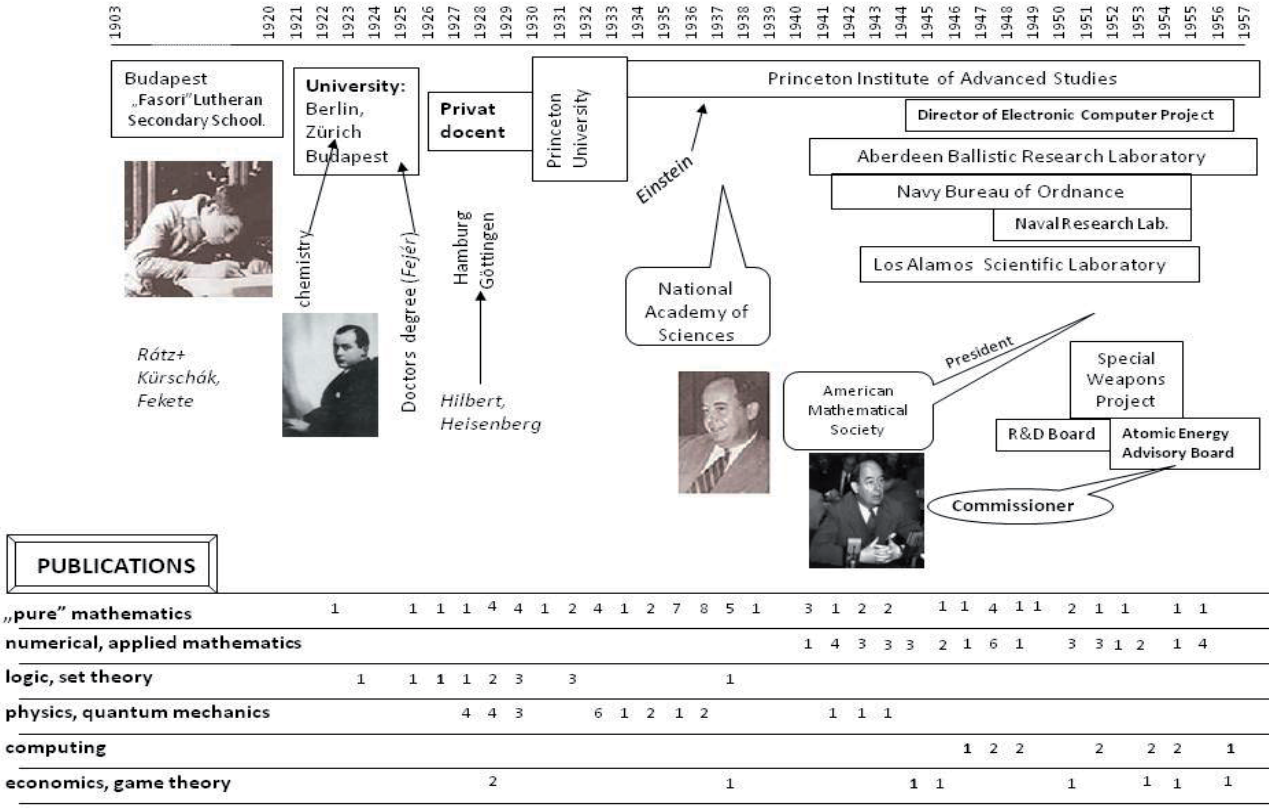
For an overview of John von Neumann's tragically short life see the time-chart below. His 54 years can be divided into three distinct periods.

The first period (pre 1926) can be defined as *learning*. Its defining venue was the legendary "*Fasori" Lutheran Secondary School*. His mathematical talent was very soon recognized by the famous teacher *Laszlo Ratz*, who asked two professors of the Budapest Technical University, *Jozsef Kürschak* and *Mihaly Fekete* to "coach" the schoolboy Neumann. This collaboration resulted in a joint paper published in a well-respected German journal in 1922. University studies were complicated for Neumann by the Hungarian political situation ("numerus clausus") and also because of his father's wish that John should have a profession more "practical" than mathematics. He studied chemistry in Zurich, but at the same time received a doctor's degree in mathematics from *Lipot Fejer* in Budapest (1926).

The second period (1927-1941) is characterized by the activities of the *mature scientist*. The first few years were still spent in Europe, at the universities of Hamburg and later Gottingen, where *David Hilbert* turned his attention to the problems of the foundation of mathematics (logic, set theory). Here he also met *Werner Heisenberg*, this being the source of the significant results of John von Neumann in the mathematical foundations of quantum mechanics.

Europe soon proved to be a too narrow space for the young scientist: he realized that the United States might provide more opportunities for real scientific research. In 1930 he left Europe behind and moved to Princeton University and in 1933 was invited to the Institute of Advanced Study, where he remained a staff member until the end of his life. This Institute was a meeting point of leading scientists of the world, like *Albert Einstein*, *Kurt Gödel* and others. In this environment his scientific activities flourished, obtaining significant results in a wide variety of topics.

His life of leading American mathematician was interrupted by the Second World War. As for the majority of American scientists, winning the war became the most important priority for John von Neumann as well. His daughter wrote[1]: "*...my father led a double life: as a commanding figure in the ivory tower of pure science, and as a man of action, in constant demand as an advisor, consultant and decision-maker in the long struggle to insure that the United States would be triumphant in both the hot and the cold wars that together dominated the half century from 1939 until 1989.*" As you can see on the right hand side of our time-chart, in this third period of his life John von Neumann did participate in the work of several military-related research organizations, including the Manhattan project, and finally be-



came Commissioner in the Atomic Energy Advisory Board of the United States.

In the lower part of the time-chart we can see a brief "statistical" analysis of John von Neumann's scientific activity, based on a rather rudimentary classification of a list of his nearly 200 publications[2]. A few conclusions:

- "pure" mathematics was in the center of von Neumann's interest during his whole life;
- the dominating topics of his "ivory tower" period were logic and set theory as well as physics, mostly quantum mechanics;
- many publications on applied mathematical topics, especially on the problems of collision and shock waves appeared during the war period;
- the post war period is dominated by papers on his new interest: computing, and also by continuing to work on economics topics (mostly game theory).

As can be seen by the number of publications, computing related papers form only a relatively small part of John von Neumann's scientific heritage. Moreover, they belong to the third, "man of action" period of his life, so they are more practical documents, rather than academic type of publications. They show, however, a strong connection between the two sides of his life. Quoting again from his daughter's book: "*These two aspects of his persona, the ivory tower thinker and the man of action, combined to produce the "von Neumann architecture" of the modern stored-program computer. The deep understanding of mathematics, physics, and engineering that characterized his purely intellectual accomplishments provided the necessary brainpower; the commitment to freedom that spurred the man of action provided the motivation."*

We may summarize, that John von Neumann, being one of the greatest mathematicians of the first half of the 20th century, did achieve valuable results in many other scientific disciplines too. His theoretical and practical work in the field of computing resulted in the elaboration of the stored program principle, what can be regarded as the basis of the enormous technological development, leading to what is now called "Information Society".

It might be interesting to ask the question: How would John von Neumann look at our present situation, with the all-pervasive role of "computing" in every aspect of society and economy. There might be two answers to this question:

- the trivial **positive** answer can be that he should be very pleased by the success of his "brain child", resulting in all embracing changes in the life of humanity. Moreover, by refusing to patent the basic ideas of stored program computing, he did actively contribute to the spread of computing technologies all over the world;
- there is also a trivial **negative** answer, considering that John von Neumann regarded the computers only as tools for performing complicated scientific and technical calculations, solving difficult problems in areas like the military, meteorology etc. Using computers for "simpler" tasks was considered by him a waste of the valuable computing power.

  Even within the field of computing he opposed the use of computers to tasks, which can be done by human power (e.g. what is called "software technology" now): the first ideas of assemblers and programming languages like FORTRAN were dismissed by him as useless.[3]

So, it is questionable, how John von Neumann would have liked our PC/Internet/smartphone oriented world, where the overwhelming majority of computing equipment is used for tasks that would be considered by him as "clerical".

In this way John von Neumann could have been regarded as one of those outstanding scientists, who made a really significant discovery at one time but failed to recognize all the consequences of his achievement in the (unforeseeable) future. This is not an uncommon phenomenon in the history of science and should not decrease at all our admiration about the results or the person.

In the case of John von Neumann, however, **this is not the complete truth!** One can start to play around with the idea how the extreme ingenuity of John von Neumann could have found its challenges in the world of modern computing and what significant theoretical and practical results he might have achieved in various areas of design and application of computing devices. But this would be speculation only! What is not speculation, however, is the fact that apart from the "John von Neumann architecture", there are several more ideas and results in Neumann's heritage, finding important applications in present day computing.

Let us see a few examples:

- Our IT world is based on the organized cooperation of different **interconnected devices** providing services to each other (see buzzwords as *cloud*, *web services* etc). The individual quality of each of these devices and services might be completely different. The whole system, however, should work on a higher level of quality as that of its individual components. The theoretical foundation for handling of such situations is given in John von Neumann's work on the building of reliable systems from unreliable components[4], which is often quoted in papers about cooperative systems.

  Java evangelist *Frank Sumners* introduced *Jini*, - one of the "first systems for distributed computing designed with the explicit acknowledgement that each component of a distributed system, including the network, is unreliable", - with a reference to von Neumann's work: "*The trick is to make highly reliable systems out of unreliable components. John von Neumann... was the first to study this problem in the 1940s; in his time, computer parts were notoriously flaky*."[5]

- One of the most spectacular developments in computing in our days is the wide spread use of **3D printing**. This means that results of the work of our computer programs can appear also in the physical world, producing different kinds of objects. A logical continuation of this idea would be to have a printer that could print itself. The theoretical possibility of building such a Universal Constructor was proven by John von Neumann in his (unfinished) work on cellular automata[6]. Practical realizations appear in several projects connected to 3D printing.

  A rather ambitious project of this kind RepRap (*replicating rapid prototype[7]*) was started at the University of Bath (United Kingdom) in 2005 and developed several hundreds of realizations in many countries. Initiator of the project *Adrian Bowyer* writes: *"We are trying to prove the hypothesis: rapid prototyping and direct writing technologies are sufficiently versatile to allow them to be used to make a von Neumann Universal Constructor."*

- Perhaps the most significant impact to present day computer science comes from von Neumann's last work, the unfinished manuscript of the traditional Silliman lectures at Yale University, published after his death[8]. Here ideas about comparing the structure and operation of computers with the (human) brain are analyzed in detail. This topic is now in the center of interest of IT research, with mega projects on both sides of the Atlantic, trying to simulate the operation of the brain[9] or building computers with ideas borrowed from its structure[10]. Using analogous elements in cooperation with digital solutions is part of the present trends[11], following ideas raised by John von Neumann also there.

These few examples may convince us to regard John von Neumann not only an outstanding personality of our **past**, as "father of the stored program principle", but also as a source of significant ideas to be used in **present** computer science research. Moreover, if we consider that Quantum Computing is regarded as the most promising computing paradigm of the **future**, and remember Neumann's fundamental results in quantum mechanics, then maybe we can change the title of this paper to "*John von Neumann: past, present and future"*.

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2 Nelson H.F.Beebe: *A Complete Bibliography of Publications of John von Neumann.*
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ftp://ftp.math.utah.edu/pub/bibnet/authors/v/von-neumann-john.pdf
3 See in J.A.N. Lee: The History of Computing http://ei.cs.vt.edu/~history/VonNeumann.html
4 John von Neumann. Probabilistic logics and the synthesis of reliable organisms from unreliable components.
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John von Neumann in Hungary

Neumann János (the original name of John von Neumann) was born and educated in Hungary, but spent all of his adult life elsewhere, mostly in the United States. Hungary, however, is very proud of his achievements and keeps his heritage in the highest esteem.

The professional society of Hungarian computer scientists, founded in 1968, is called *John von Neumann Computer Society*. Several schools, streets etc. also bear his name. The year 2003, when the 100th anniversary of his birth was celebrated, was officially declared by the Hungarian government as "Neumann Year". Several international conferences were devoted to different areas of John von Neumann's scientific activities. The concluding event was the Centennial Congress of the John von Neumann Computer Society, opened by the President of Hungarian Republic and featuring many prominent international speakers, including his daughter Marina von Neumann Whitman.

In 2013 Marina was invited again as honorary guest at the opening of the IT Museum in Szeged[12], which houses a large scale collection of historic computing equipment as well as several unique relics of John von Neumann's life). In her talk[13] at the opening conference she said:

My father's presence was closest in 2003, when Hungary staged a national celebration commemorating the hundredth anniversary of his birth. I was invited to participate as an honored guest, an honor that carried with it one of the most hectic schedules I've ever encountered. A couple of weeks after finishing treatment for breast cancer, I found myself not only giving talks about my father at internationally attended meetings of the Hungarian Mathematical and Computer Science societies in Budapest, but also giving informal talks about him, in English, to students in schools all over Hungary. Thank goodness it's a small country; Bob and I were transported to every corner of it in the cramped elderly vehicle belonging to one of my father's self-appointed promoters[1], who enthusiastically acted as our chauffeur. Some of the schools were actually named after von Neumann, but in all of them students knew who he was, what he had accomplished, and had created various exhibitions to honor him. I tried to imagine American high-school students according a long-dead mathematician the sort of veneration reserved here for sports and entertainment celebrities! ■

1 Győző Kovács (1933-2012)

5 Frank Sommers: *Survival of the fittest Jini Services Part 1,* p. 6. JavaWorld, April 2001
http://www.artima.com/jini/jiniology/surv16.html
6 Von Neumann, J. and A. W. Burks: *Theory of self-reproducing automata.*
Urbana, University of Illinois Press, 1961
7 RepRap – the Replicating Rapid Prototyper Project
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8 Von Neumann, J. *The Computer and the Brain*. New Haven and London: Yale University Press.
9 E.g.: Human Brain Flagship Project of the EU
https://www.humanbrainproject.eu/hu
10 E.g. Neurosynaptic Chips at IBM
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11 Robert McMillan: *The End of Digital Tyranny: Why the Future of Computing Is Analog*
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MultiCulti

The Viennese New Year's Concerts

Dorothy Hayden

Vienna is world-famous for its New Year's concerts, which are televised and broadcasted live on 1 January with millions of viewers around the world.

The concerts have a long tradition – the 1st was performed on 31 December 1939 in the "Großer Saal" of the Musikverein, and since then all consequent concerts are given on New Year's Day. The performance of the Vienna Philharmonic always includes compositions (waltzes, polkas, mazurkas and marches) from the Strauss family with occasional pieces from other Austrian composers. In recent years, the encores have become a tradition and *The Blue Danube* and the *Radetzky March* are the culmination of this memorable event.

In 1980 Lorin Maazel became the first non-Austrian conductor of the concert and the practice of choosing different star conductors began in 1987 with Herbert von Karajan.

Daniel Barenboim is invited to conduct the 2014 New Year's Concert of the Vienna Philharmonic. This invitation is made in recognition of 25 years of musical collaboration between the Vienna Philharmonic and the General Music Director of the State Opera *Unter den Linden* in Berlin.

There is an extremely high demand for the New Year's Concert and ticket prices range from EUR 30 to EUR 940. Few will be the lucky ones to be in the Musikverein on 1 January 2014 for the concert starting at 11.15 hrs. There is, however, the possibility to view it live along with more than 50 million viewers in some 80 countries around the globe.

The "Großer Saal" of the Musikverein
Source: commons.wikipedia.org ■

Towards a Creative Information Society

Highlights from the 8th International Conference on Knowledge, Information and Creativity Support Systems

Andrzej Skulimowski

Andrzej M.J. Skulimowski is Professor at the AGH University of Science and Technology and Director of the Decision Sciences Laboratory. Since 1995, he is President of the International Progress and Business Foundation, Kraków, Poland and served as General Chair of KICSS'2013.

After seven successful interdisciplinary conferences organized in East Asia and Australia, the 8th International Conference on Knowledge, Information and Creativity Support Systems (KICSS'2013) has been organized for the first time in Europe - in Kraków and Wieliczka, Poland. The previous conferences in this series were held in Ayutthaya, Thailand (2006), Ishikawa, Japan (2007), Hanoi, Vietnam (2008), Seoul, Korea (2009), Chiang Mai, Thailand (2010),

A group of KICSS'2013 participants at the Market Square in Kraków, November 8, 2013

Beijing, China (2011) and Melbourne, Australia (2012). The proceedings of KICSS conferences have been published a.o. by Springer in the LNCS/LNAI series, IEEE CPS and JAIST Press [1,2,5]. KICSS conferences provide traditionally an international forum for researchers as well as IT practitioners to share new ideas and original research results. New research and development areas for knowledge, decision and creativity sciences are also determined and practical development experiences are vividly discussed.

Following the tradition of previous conferences in this series, KICSS'2013 covered all aspects of knowledge management, decision support systems, intelligent information systems and creativity in an information technology context. The conference specifically covers the cognitive and collaborative aspects of creativity. The focus theme of KICSS'2013 has been "*Looking into the Future of Creativity and Decision Support Systems*", consequently, the list of conference topics included for the first time future-oriented fields of research, such as anticipatory networks and systems, foresight support systems, relevant newly-emerging applications such as autonomous creative systems, and the areas of future research such as general creativity. In addition, several sessions included papers presenting the results of the recently concluded foresight project SCETIST [3], devoted to investigating the future trends and scenarios of selected artificial intelligence and information society technologies until 2025, including the decision support systems and creativity.

From over 100 submitted papers, 60 papers have been accepted for presentation. 40 of these are full papers, while 20 are short or poster papers. The submissions came from a total of 20 countries from 4 continents. The conference was attended by 77 participants. The truly global nature of the conference is also evident in the composition of the International Program Committee, which comprised 45 high-rank experts from 18 countries.

All papers presented at KICSS'2013 reported original, unpublished research results on theoretical foundations, IT implementations of decision support and expert systems, creativity support systems as well as case studies of successful applications of these ideas in various fields. Two invited plenary lectures have been presented by Prof. Susumu Kunifuji from the Japan Institute of Advanced Science and Technology, Ishikawa, Japan, and Prof. Thomas Köhler from the Technical University of Dresden, Germany.

As a special feature of KICSS'2013, on 9th November 2013, the last day's sessions have been organized 110m underground in the Wieliczka Salt Mine. The scientific program has been combined with a visit of the historical monuments and museum in this 1000 year-old mine, which is a UNESCO world heritage treasure. While visiting the Salt Mine, participants enjoyed the hospitality of the Lord Mayor of Wieliczka Municipality.

Another novelty has been an opportunity to take part in a Delphi exercise on the future of intelligent technologies. The questionnaires are available on the website www.ict.foresight.pl as an outcome of the above mentioned foresight project SCETIST. The survey is open to the IT-Star community until January 2014 (a registration is necessary) as well. All those interested are warmly invited to fill-in the questionnaires. The results of the survey will be presented at the KICSS'2014 in Paphos, Cyprus.

The conference has been organized by the International Progress and Business Foundation, Kraków, Poland. The Foundation is an international research, consultancy, educational and technology transfer institution founded in 1991 by the AGH University of Science and Technology, the Jagiellonian University - the oldest university in Poland (since 1364), joined by the Danish Technological Institute, the Polish Ministry of Industry and Trade, the Polish Academy of Sciences and other institutions. For over two decades of activity, the Foundation has developed a unique combination of expertise in applied research in artificial intelligence, decision sciences, financial and economic modeling, as well as information technologies with practical aspects of know-how transfer and policy research. The Foundation

performs foresight studies and roadmapping-based strategic planning in information technologies and other areas.

The Proceedings of KICSS'2013 can be ordered at the conference website www.kicss2013.ipbf.eu. Selected revised and extended papers presented at the conference will also be published in the post-conference volume of the Springer series "*Advances in Intelligent Systems and Computing*" and in the special section of the *International Journal of Applied Mathematics and Computer Science* (AMCS).

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2. Lee, V.C.S., Ong K.L. (Eds.): KICSS 2012: seventh international conference on Knowledge, Information and Creativity Support Systems: Melbourne, Victoria, Australia, 8–10 November 2012, IEEE Computer Society. CPS Conference Publishing Services (2012).
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4. Skulimowski, A.M.J. (Ed.): Looking into the Future of Creativity and Decision Support systems: Proceedings of the 8th International Conference on Knowledge, information and creativity support systems : Kraków, Poland, November 7–9, 2013. Advances in Decision Sciences and Future Studies vol. 2, Progress & Business Publishers, Kraków, 671p. (2013) e-ISBN: 978-83-912831-8-9 (CD), ISBN: 978-83-912831-6-5 (hardbound), available from www.kicss2013.ipbf.eu.
5. Theeramunkong, T., Kunifuji, S., Nattee, C., Sornlertlamvanich, V. (Eds.): Knowledge, Information, and Creativity Support Systems: KICSS 2010 Revised Selected Papers, LNAI, Vol. 6746, Springer, Berlin; Heidelberg (2011). ■

Introducing the Small and Medium Enterprise IT Capability Maturity Framework (SME IT-CMF)

Marian Carcary

Dr. Marian Carcary is a research fellow at the Innovation Value Institute in Maynooth, Ireland. She is currently project manager of the SME IT-CMF project, focusing on the development of an IT management framework suitable for SMEs. She has previously worked on European funded projects. Her research interests include Information Security Management, Cloud Computing and drivers and challenges surrounding business value realisation by SMEs.

The Small and Medium-sized Enterprise (SME) sector is acknowledged as a fundamental component in the success and growth of any economy. Given the current difficult global economic conditions, it is essential that this sector is supported and continues to thrive. Technological advances, such as Cloud, high speed broadband, mobile technology, and social media now enable SMEs to become more agile and responsive to changing market conditions, and to compete more effectively with larger firms. As IT moves to become a core capability, it increasingly defines a company's ability to compete in today's competitive environment.

The Innovation Value Institute (IVI), located at the National University of Ireland Maynooth, is currently working on an 18 month Enterprise Ireland funded project, focused on the development of an SME version of its IT-Capability Maturity Framework (IT-CMF). The IT-CMF aims to support organizations in maximizing the business value that can be derived from information technology. Using the IT-CMF "*CIOs can help drive four types of improvement shifts for IT capability:*

- *Move the business model of the IT capability from a cost centre to a value centre.*
- *Move the IT Budget from a runaway scenario to a sustainable economic model.*
- *Move the value focus from purely measuring total cost of ownership to demonstrating optimized value.*
- *Move the perception of IT from that of a supplier to that of a core competency*". (Curley and Delaney, 2010, p.4)

Development of the SME version of this framework is being supported by a work group comprising of industry practitioners and academic researchers. The SME IT-CMF is a simple and cost effective management tool aiming to help SME's identify, assess and manage core IT capabilities for improved business value realization. The framework includes a set of 10 IT capabilities[1] and there are two maturity assessment types that can be taken online depending on a company's requirements:

- **High-Level Assessment (HLA):** The High-Level Assessment provides an overall snapshot or "rapid health check" of current maturity across all ten capabilities, enabling a company to pinpoint which critical capabilities require priority focus.
- **Critical Capability Assessment (CCA):** A 'deep dive' assessment is also available for each of the ten capabilities.

1 Capabilities include Business Process Management; Business Planning; Strategic Planning; Risk Management; Sourcing; Funding and Financing; Relationship Asset Management; Solutions Delivery; Service Provisioning; and User Experience Design.

Following each assessment a report is issued to the participating company detailing the current level of capability maturity and providing prioritized guidelines/recommended practices on how to improve the capability, and metrics to monitor progress and performance over time.

This framework is currently being tested/ validated in several small-to-medium sized organizations. IVI invites any company suitable for and interested in engaging in this framework validation exercise to please contact Dr. Marian Carcary – marian.carcary@nuim.ie. ■

Member Society News & Events

Bulgaria

The 110th Anniversary of John Vincent Atanasoff was organized in Sofia on 4 October 2013. Its Program included the following events:

- International conference on Automatics and Informatics'2013
- Awarding John Atanasoff II (who is a member of the Advisory Board of this Newsletter) and Joanne Gathers with "The Madara Horseman" 1st Class Order, by the President of Bulgaria.
- Awarding Ceremony – 2013 "John Atanasoff" Presidential Award Winners.
- WS on Science, Innovation and Start-Ups

BG President Plevneliev (5th fm left) with awardees. John Atanasoff II and sister Joanne (3rd, resp. 2nd fm right)

Italy

Associacione Italiana per l'Informatica ed il Calcolo Automatico – AICA has been busy in promoting the New ECDL and the competences that it develops, with a series of roadshows in Rome, Milan, Florence, Bari, Genoa, Verona and Palermo.

■

Forthcoming IT STAR Event

8th IT STAR Workshop on History of Computing
19 – 20 September 2014, Szeged, Hungary ■

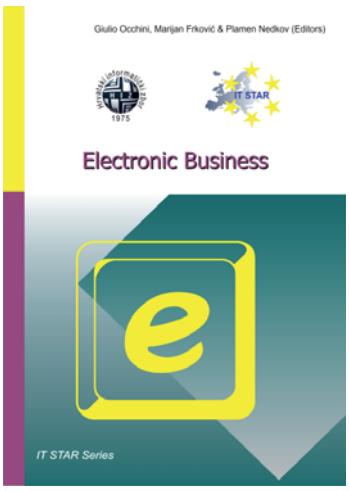
Partner Publication

Mondo Digitale

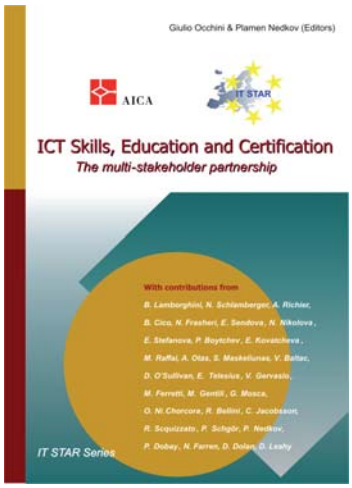
http://mondodigitale.aicanet.net/ultimo/index.xml ■

IT STAR Publications

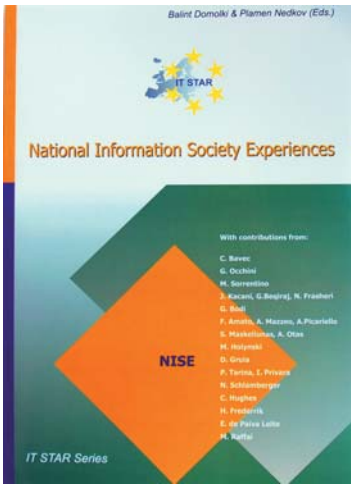
Eds. P. Nedkov, G. Occhini & G. Mastronardi
© IT STAR 2013, pp. 139
ISBN 978 88 9809 1 11 9



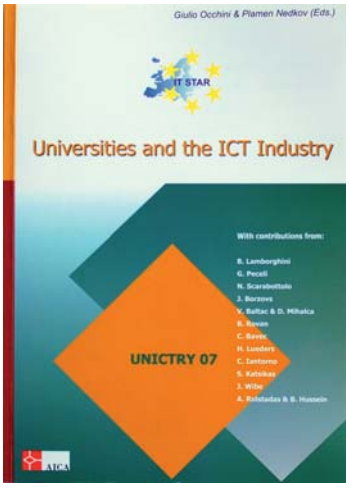
Eds. G. Occhini, M. Frkovic & P. Nedkov
© IT STAR 2011, pp. 125
ISBN 978 88 9054 0615



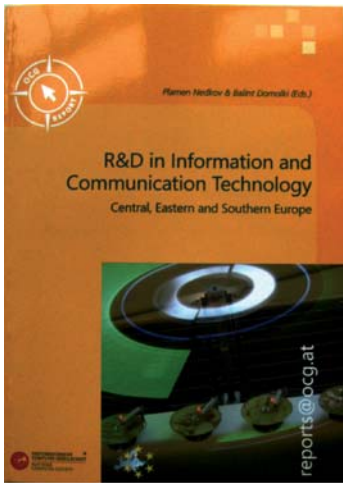
Eds. G. Occhini & P. Nedkov
© IT STAR 2010, pp. 165
ISBN 88-901620-5-8



Eds. B. Domolki & P. Nedkov
© IT STAR 2009, pp. 118
ISBN 88-901620-2-3



Eds. G. Occhini & P. Nedkov
© IT STAR 2007, pp. 104
ISBN 88-901620-1-5



Eds. P. Nedkov & B. Domolki
© IT STAR 2007, pp. 116
ISBN 978-3-902580-02-3

Further information about these and other IT STAR books is posted at http://starbus.org/publications.htm.

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. Rovan
- Slovenia (2001) N. Schlamberger

Statutes

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

Mission

"To be the leading regional information and 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:

2013 Bari, **Italy** (May)
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

- 7th IT STAR WS on eBusiness - http://www.starbus.org/ws7
- 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
- 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 & Web-site

The IT STAR Newsletter (nl.starbus.org) published quarterly.
www.itstar.eu ■

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