Newsletter - *Calibrated for Creative Communications*

Vol. 5, no. 2, Summer 2007

From the Editor

Summertime and the Livin's Easy, but it can get hectic cleaning-up the desk before heading somewhere to chill off.

For the Newsletter, it is indeed a busy time. Following IT STAR's 26 May Workshop on Universities and the ICT Industry in Genzano di Roma, we had to ensure that we publish on time -- not so easy as IT STAR is a volunteer enterprise, angels in a chorus with different drumbeats… That is true, of course, for many other NGOs that we know and this makes the common effort even more precious!

We wished to make sure that this issue is published on time as per the request of the Genzano di Roma workshop participants - *"IT STAR's member societies to inform of this Declaration their constituencies, governments, universities and major industry players, as well as international organizations with which they are affiliated"*.

Likewise, we are happy to honor their expectations *"… that the Declaration is published in the IT STAR Newsletter"*.

There is more to offer and we are pleased to Deliver!

Happy reading,

Plamen Nedkov

Contents:

Letters to the Editor:

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Organization

IT STAR Business meeting in Genzano, 27 May

[Step by step … or was it the other way around?]

Housekeeping meetings are not necessarily exiting, but useful, and this one makes no exception.

The business meeting in Genzano endorsed the Bratislava November 2006 decisions but fell short of a general commitment with respect to the recommendations of IT STAR's Statutes Committee on future strategic development. It, however, recommended that individual consultations with IT STAR member societies are initiated in order to define an appropriate strategy and a model for IT STAR's future organization of activities.

The next IT STAR business meeting will convene on **6 October 2007 in Timisoara, Romania.** ■

Letters to the Editor

"It's IT STAR's best visibility platform. Congratulations!" *[Statement during IT STAR's meeting on 27 May 2007 in Genzano di Roma]*

Vasile Baltac, ATIC President

"Again, I am most pleasantly surprised over the NL. I believe that many entities with richer resources than those of IT STAR have less to show and that only adds to my appreciation of all that have contributed to the achievement - with their ideas, vision, and work. I believe that the SSI membership will enjoy the issue as it has enjoyed those before it - and feel sorry for those IT STAR member societies' constituencies that do not receive hard copies. They really miss a lot."

Niko Schlamberger, SSI President

"Congratulations on the new issue of the IT STAR NL."

Giulio Occhini, AICA CEO

Joke of the Issue

Having joined a monastery, a man takes a vow of silence, with the exception of two words every five years. After the first five years, the elders bring him in and ask for his two words. "Cold floors", he replies. The elders nod and send him away for another five years.

Time passes, and when he is called in again he says, "Bad food". They nod and send him away.

Five more years go by, and at their next scheduled meeting, he says, "I quit".

"Well, I can't say that surprises us", said the eldest elder, "all you've done since you got here is moan and complain".

[Visit www.itstar.org/jokes for the best anecdotes on the Internet] ■

EDITORIAL POLICY

This Newsletter aims to maintain a world-class standard in providing timely, accurate and interesting material on ICT and Information Society activities from the perspectives of Central, Eastern and Southern Europe (CESE) within a global context. It strives to facilitate the information and communication flow within the region and internationally by supporting a recognized platform and networking media and thus promoting and improving the visibility and activities of the IT STAR Association.

The entities and stakeholders whose interests this newspaper is addressing are

- IT STAR's 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 can be negotiated.

The newsletter is circulated to the 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 editor@starbus.org.

Advisory Board

New members of the Editorial Advisory Board

This Newsletter enjoys the friendly support and advice of IT STAR's National representatives (listed on page 1) and we are grateful for their thoughtful contributions.

Since the issues we cover are of international interest we invited two internationally recognized scientists to advise us on policy and editorial matters in their broad fields of activity and research, respectively Theoretical Computer Science and Communications Systems. These areas are of great interest to our readership and we are thankful to professors Giorgio Ausiello (Italy) and Augusto Casaca (Portugal) for accepting.

Giorgio Ausiello is professor of Computer Engineering at the University of Roma "La Sapienza". He is the Editor-in-Chief of the Journal on Theoretical Computer Science – Series A (Algorithms, Automata, Complexity and Games) and President of the European Association of Theoretical Science. He is also a member of the Academia Europea and Past Chairman of IFIP's TC1 on TCS. Giorgio's research interests include optimization, approximation, on-line and dynamic algorithms.

Augusto Casaca is professor at the Instituto Superior Tecnico and Leader of the Research Group on Network Architecture at Inesc-Id, Lisbon, Portugal.

Augusto is a Senior Member of IEEE and past Chairman of IFIP TC 6 on Communications Systems.

We are very pleased that Mr. Bogdanowicz also accepted our invitation to join the Advisory Board.

Marc Bogdanowicz is Action Leader of the Techno-Economic Development of European Information Societies project at the ICT Unit of the EU's Institute for Prospective Technological Studies (JRC-IPTS) in Seville.

Marc has been helpful in identifying topics and researchers at IPTS willing to contribute to the Newsletter and we trust that the present excellent cooperation will further develop in future. ■

Higher Education and the ICT Industry

*[Istituto Salesiano San Luigi Versiglia in Genzano di Roma was the venue of the 2nd IT STAR workshop on Universities and the ICT Industry (**UNICTRY '07**). There, senior representatives of academia, civil society, government and industry, including presidents and chief executive officers of national and international organizations, met to share experience on the important topic of the university-industry partnership and to draw conclusions and recommendations for further steps which IT STAR and other stake-holders should address.*

*Following the successful outcome, our first temptation was to present in this issue an upbeat report on the **UNICTRY '07** Workshop. Then, we felt that we had such a unique material of presentations that it would be best to invite some of the authors to share their thoughts with the readership of this newsletter.*

This part includes the adopted Genzano Declaration and a selection of (abridged) papers.]

Istituto Salesiano San Luigi Versiglia

Genzano Declaration

***We**, the participants of the 2nd IT STAR Workshop on University - ICT Industry (UNICTRY '07) held on 26 May 2007 in Genzano di Roma, Italy,*

Identifying with the mission of universities to preserve, transfer, assess and expand knowledge,

***Appreciating** the importance of this particular event to promote an open exchange of views and further collaboration related to multi-stakeholder partnerships in higher education,*

***Understanding** the role of professional non-governmental organizations in providing independent opinion and advice on important matters,*

***Have agreed to the following**:*

1. We recognize the value of the Bologna process as a means of convergence and comparability of university study programs leading to an intensive exchange of experience and knowledge. In this vein, we realize that there are important accomplishments in the process but also weaknesses. Further consideration at the national level would be important and we recommend IT STAR's member societies to be actively involved in the discussion.

2. We recommend European universities to focus on innovativeness, which deals with knowledge, but more so with the way knowledge is used. University studies are not simply an individual endeavor but also a process of attaining professional excellence and innovativeness, group work, establishing trust and open exchange of ideas.

3. We encourage stronger collaboration between informatics departments and business/application communities. Multi-stakeholder partnerships in which universities play a major role in extending the provided products and services by utilizing and combining the respective strengths and resources of government, the private sector and civil society. We recommend strong engagement in multi-stakeholder partnership projects as the combination of governmental support, academic knowledge and business motivation positively influences the emergence of new products and services and increased European competitiveness.

4. Governments have an important role and responsibility in supporting public universities and other higher education and research institutions. At the same time, every effort should be made to make the use of public finances transparent. It is also their responsibility to create an innovativeness-friendly environment.

5. Cooperation between universities and industry in defining competence profiles is essential to supply the labor market with professionals capable of satisfying industrial needs but also able to benefit from technological evolution.

6. We realize that there exists an under-estimation of the fact that user IT-ignorance represents a major obstacle in implementing and operating successfully innovative IT solutions in business and public administration. Consequently, we strongly recommend that the highly recognized and vendor neutral IT literacy such as ECDL program is supported in the process of attaining the e-Europe 2010 goals.

7. We recommend the integration of new programs and tools for certification of professional competence, for example the European EUCIP program, into university computer science courses. Respectively, industry recognition of ICT certifications is critical in supporting diffusion of certifications within universities.

***We suggest** IT STAR member societies to inform of this Declaration their constituencies, governments, universities and major industry players, as well as international organizations with which they are affiliated. Likewise, we expect that the Declaration is published in the IT STAR Newsletter.* ■

2nd IT STAR UNICTRY '07 Workshop,
26 May 2007, Genzano di Roma

Keynote Address

by Bruno Lamborghini

Dr. Bruno Lamborghini is president of the European Information Technology Observatory (EITO) and since February 2007 president of AICA, the Italian member society of IT STAR.. Bruno is senior vice-president of the Olivetti Group and professor at the Cattolica University of Milan.

During the past few months the ICT industry has entered into a new technological cycle driven by digital convergence and full diffusion of the Internet as the main architectural network based on the IP standard for all communication channels and open to new applications under the label of the so called Web 2.0.

Completely new is its global diffusion: the new cycle is now covering at the same time all world regions with a special impetus coming from India and China. And as a second relevant factor, it will not be limited to a specific industry, but is reshaping globally many industrial sectors.

According to OECD the world ICT market in 2006 reached 6% growth rate driven mainly by the so-called BRIC countries (Brazil, Russia, India and China) with an annual growth of more than 20% since 2000, with China being the world leading ICT exporter and the 6th major world ICT market.

High growth has been also shown by the new EU member states (more than 7% in average, but with IT growth of approx. 12% in some countries).

The Internet growth in terms of world web addresses (URL) has doubled in two years from 50 to 100 million. World web users are now substantially more than one billion, with most of the new users coming from newly emerging markets. There's one mobile subscription for every two people of the planet, 2.5 billion cell phone lines, 200 million DSL lines, 100 million 3G lines at world level in 2006 with endless expectations.

We are seeing every day the extraordinary diffusion of DSL technology in the wireline telecommunications networks, of Third Generation technology (UMTS and HSPDA) in the mobile networks with an exponential increase in bit rates and the new opportunities opened by the developments of wireless technologies such as WiFi and WIMax.

The digital convergence scenario moves on rapidly based on a common standard, the Internet Protocol while Internet is entering a new life cycle (Web 2.0) as an infinite grid of shared exchanges of self-produced-self distributed content on a Peer2Peer (P2P) basis (as shown by the examples of My Space, YouTube, all the blogs, pod-casting and social networks communities).

In a recent book I defined the impact of the new technological cycle on the economic development as the Digital Sharing Economy, which means totally new ways and new business models in exchanging information, content, services and also physical products, with dramatic changes in all value chains and industry structure.

New business models and new players are appearing incessantly: let us consider the entrance of supermarkets and retail chains or large consumer brands into the telecommunications markets through mobile virtual networks and VoiP. Traditional industry borders are under strong competitive pressures from new players. M&A are changing the value chains.

In the European Union we have today a tremendous opportunity to take advantage of our common assets and cultural values and through them to participate in a new world-phase of development. This is not done in a passive way but by using our cultural and social values to help reshape the future path of economic and social progress, quality of life and sustainable trade-off of resources and needs.

We have entered the Knowledge Society based on new value added services, intangible goods, personal interests, new communities, knowledge sharing, new interactive organisations, where all people on Earth could potentially communicate with each other, can have access to all information and cultural heritage, can potentially chose their lifelong learning program. It is no more utopian to move in this direction, following what the Internet freely proposes based on common contribution. If it has been possible to create in a few months a dynamic and powerful encyclopaedia-like Wikipedia built every day through hundred of thousands of individual contributions, in a sense we can say that there are no limits in the process for building a global Knowledge Society.

At the same time we have to say that this is not a free lunch. We have obstacles, self-defence of traditional borders and interests, conservatism, closed and protected niches looking more to the past than to the future.

Even risk of cultural conflicts: the new global and technological environment is rapidly changing borders, both at national and industry sectors level, transforming jobs, professions and labour markets, rapidly obsolete educational systems, increasing risks of a generation divide, risks of economic and cultural domination by high growth areas vs. limited growth areas.

We cannot sleep, we have to take initiatives!

In the past few years in Europe we have experienced a sense of weakness in terms of competitiveness and growth in the new scenario. Now things are changing,

partly due to the new blood coming from the new EU members who are revitalising old Europe. There are now favourable opportunities in the EU to exploit. Advantage is taken of the extraordinary widening of broadband lines, both wireline and wireless, by business and household users, the number of large European firms and new entrants in the digital arena, and of the strong and sometimes unique innovation capacity and creativity of many European players.

Advanced innovative telecommunications infrastructures, 65 millions DSL broadband lines end 2006 (one third of the world total), expected to double before 2010, 800 million mobile lines (150% penetration rate or more than 1.5 line for every European citizen), 300 million Internet users: they all represent strategic assets on which to build for Europe a competitive role to play in the new global environment.

Since the beginning of mobile communications, Europe has played a major role, reaching very high penetration rates in an area which represents the most challenging market open to new digital applications and services, with integrated mobility access becoming the most relevant requirement for all users.

New wireless technologies and advanced file-sharing programs like VoiP have been developed and launched by European entrepreneurs while the number of M&A and IPO in the ICT and media industry has taken off in Europe during 2005 and 2006.

But also because we better understand our opportunities and the potential of our assets in a scenario which is based on knowledge, research, education, culture, intangible goods, quality of life, physical resource saving, environmental protection, economic sustainability, social progress, health care. Especially, when we compare our potential and current assets with those of other areas.

In my introduction to the EITO Report 2007 I stressed the wake-up of Europe in the ICT market after many years of uncertainty:

- New strong development for the demand of software and IT services,
- New start-ups and mergers and acquisitions,
- Innovation in broadband communication services, specially mobile networks,
- Strengthening of research co-operation between industry and universities also with the support of the increased funding of the 7th Research Framework Program of the EU Commission.

We have in front of us an expected long phase of economic development which has to be strengthened through common efforts towards common objectives at the European level.

A main source of concern and risk of a dangerous gap is related to the scarcity of required skills in this new scenario.

The so-called e-skills represent the real strategic asset for strengthening Europe and becoming a real Knowledge Society. So, the target of this workshop is perfectly focused on this issue: we need to investigate problems and challenges of the ICT-related high education and the interplay between universities and the ICT industry and utilisation in Central, Eastern and Southern Europe.

There is a strong need to give to policy-makers in Europe the right requests to speed-up the change in education so as to increase investment of universities for preparing the right skills. We need to prepare each year hundreds of thousands of engineers and highly qualified specialists in physics, in mathematics, in informatics, in nanotech, in biotech, starting at the secondary school level, which is already an issue of strategy in Asia.

We need to certify at an European level professional preparation in ICT, as done by the EUCIP certification, for a harmonised and dynamic approach to the preparation of new e-skills.

In AICA we feel very strongly this need to proceed rapidly in closing the skills gap.

AICA is Italy's most prominent association in the Information Technology area since 1961 with primary focus on the development and promotion of all aspects of ICT in the Italian society, favouring co-operation between universities and research centres, public and private organisations, manufacturers and vendors of ICT.

AICA, through its participation in international institutions like IFIP and CEPIS and also as founding member of IT STAR, is responsible for the development and management in Italy of the European Informatics certifications. These include the European Computer Driving Licence (ECDL), with more than 1.2 million registered candidates, 2700 test centres and 100.000 tests monthly performed and the EUCIP (European Certification for Informatics Professionals and also the e-citizen program, for training citizens with limited understanding of computer and access to Internet.

AICA has obtained clear recognition by various institutions and co-operation with ministries, regional authorities and universities.

A project called IT4PS (Information technology for problem solving) has been launched between AICA and the CRUI Foundation (the Italian University Chancellors Conference) involving several Italian Universities with the main goal to support and enhance the acquisitions by students of advanced skills in the usage of productivity tools to solve daily problems in various University curricula (Economics, Medicine, Statistics, etc.). At the same time AICA, together with CRUI and CINI (Italian inter-university ICT consortium) launched the EUCIP4U for introducing EUCIP into Italian universities.

All these projects confirm the full engagement of AICA in co-operation with the Italian universities to widely diffuse IVT in the University programs.

AICA in co-operation with the Italian Bocconi University started an extensive project to evaluate the social and economic costs due to the lack of IT-Skills, called the cost of IT ignorance (evaluated in Italy at approx. 19 billion Euro per year).

From the recent EUCIP Conference 2007 held in Rome last April it appears that AICA is leading the process of ICT-Skills harmonisation in Europe.

A CEPIS study on Thinking ahead on e-skills for the ICT industry in Europe shows the strategic relevance of employing new e-Skills in Europe in order to face the new scenario. According to this study, there will be a need in Europe by 2010 of more than 250.000 ICT skilled people and a risk of falling short of at least 70.000 of them because of not enough adequate qualification and certification.

The analyses done by the EITO Report confirm the gap in ICT skill preparation in Europe, but underline also another very risky gap in the so-called e-Business skills that mean effective competencies in using ICT and web technologies for business applications and for e-government applications. The e-Business skills require a convergence of ICT, managerial and organisational competencies in order to reach an effective integration of ICT and the web into the organisations, or improve the diffusion of technologies for complete reorganisation of firms and institutions.

This gap can have a dramatically negative impact in reaching improvement in productivity and competitiveness, and is particularly dangerous for SMEs. As shown in many US cases and in some European ones, there is clear evidence of strong improvement in reorganising a company around the Net, internally and externally, widening the integration of the Intranet and Extranet towards the company's ecosystem with various stakeholders.

The lack of e-business and ICT skills at the country level can risk to loose 1% of the GDP.

In EITO, we have also examined the risk of not investing in ICT-Skills in Europe due to the transfer of software development and research in offshore areas such as India (and possibly also with the risk of a brain drain from Europe to Asia).

Consequently, there is an urgent need to invest in Europe for the right e-Skills with special reference to the university and close co-operation between public and private organisations with universities.

According to EUROSTAT, the main sources for preparing ICT skills in Europe are non-formal learning processes, but mainly learning by doing, self-education and informal training. Not so many industrial companies have a formal ICT training program.

In major European countries there is also a declining perception of job-perspectives coming from ICT and the Internet, especially after the Net financial bubble explosion of 2001. I believe that is less true in Central and Eastern Europe where the interest for ICT jobs is stronger.

For all these reasons there is a need to converge on the issue of focusing on ICT related education systems all over Europe: clear target of defining and jointly agreeing on ICT and e-business professional profiles, integrating the national schemes for classifying the educational profiles in the universities such as SFIA in UK, AITTS in Germany, Borsa Lavoro in Italy, having EUCIP competence centres as points of reference.

Furthermore, ICT and web technologies have to be considered as main enabling technologies for the preparation of all professions and in all industrial and social activities.

Universities, secondary and high schools should refocus their education programs around these enabling technologies and redesign new partnerships with industry and public services for the dynamic preparation of the right skills in a permanently changing environment.

To conclude, I thank very much the IT STAR organisers of this workshop for having proposed such a strategic theme. Thanks to the new energies coming from Central and Eastern European participants, I am sure the workshop will produce concrete proposals for helping battle the e-Skills gap in Europe and giving stronger impetus to an effective European participation in the new challenging scenario. ■

UNIVERSITIES AND THE ICT INDUSTRY IN SEARCH FOR INNOVATIVENESS

by Cene Bavec

Prof. Dr. Cene Bavec lectures subjects on Management and Information Technology at the University of Primorska in Slovenia. He was Dean of the School of Management in Koper. Before joining the academic community, Cene held different positions in the Slovenian government, most recently as State Secretary for Technology. He then joined IBM and managed the IBM University Relations in Central Europe, Russia and the Middle East.

Collaboration between universities and industry is an issue that has been widely discussed in Europe for decades. It does not matter who is discussing it, the final

conclusion is always the same – nobody is truly happy with it. Insufficient cooperation between universities and industry is a never ending story which constantly challenges governments, academia, and industry. We could easily understand that less developed countries face this problem in combination with more or less intensive brain-drain and low industrial efficiency, but similar tones are coming even from the US. At least they have less to complain about, as the US remains a sort of European ideal in this field. If we are all facing the same problem it is maybe not a problem. Maybe industry and universities have unrealistic expectations and different objectives. It greatly depends on the point of view.

In this short presentation I would like to concentrate on an issue that is often neglected in assessments of University – Industry relations. Too many conclusions are based on the over-pragmatic assumption that we are dealing mainly with "joint projects". A large number of joint projects financed by industry would automatically mean good relations with universities and an efficient transfer of innovations from academia to industry. It is partially true, but this is just one side of the medal. There is a serious dilemma in this perception of University – Industry relations that can be symbolically illustrated by the well known story of the difference in catching fish for someone or teaching him how to catch fish. With joint projects industry is buying innovations from universities, but it is not getting innovativeness that is a basis for innovations.

There is a basic difference between innovations and innovativeness. Innovations are unique ideas that can be exploited by industry, but they are just singular events in time. On the other side, innovativeness is a combination of knowledge and personal ability to use this knowledge in a creative and innovative way. It is not a one-time event; it is more a permanent state of the human mind. Production of innovations is just the tip of the iceberg; innovativeness is hidden below the water surface and it balances the tip. Many studies confirm that the main challenge of modern societies is innovativeness. Economic efficiency, industrial growth, social development, etc. are just its consequence. To make the story shorter, we could state that the main role of universities is to raise innovativeness in all areas of our society, including industry. Real blessings for industry are innovative professionals.

Why is innovativeness such a challenge for universities? At first, it is difficult to learn because it is based on personal capacity and also on the social environment in which somebody tries to be innovative. Innovativeness needs simulative environment with high social capital, trust, and many other positive attitudes. We can see that on national levels, but it is not very different at the university's or industry's level.

Data on national innovativeness in European countries, presented in the full version of the paper [*to be published in the proceedings of the 2nd IT STAR WS in Genzano di Roma, 26.05.2007*], illustrate our view from different perspectives:

1. There is a strong correlation between GDP per capita and national innovativeness (Summary Innovation Index) for all European countries.
2. There is even stronger correlation between GERD (Gross domestic expenditure on R&D) and innovativeness. These investments obviously increase innovativeness.
3. On the other hand, we can see low correlation between total public expenditure on education and innovativeness. The really important thing is investment in R&D. In other words, innovativeness is "born" predominantly in universities.
4. We can also see high correlation between the Composite trust (calculated on the basis of trustworthiness, trust in institutions, and interpersonal trust, based on van Oorschot and Arts, 2005) and innovativeness. It just confirms beliefs that social and personal distrust kills innovativeness and that it is easier to be innovative in societies with higher social capital.
5. Many argue that industry needs a larger number of S&T graduates and that they are crucial for technological development. Our results show a very low correlation between the share of S&T graduates and innovativeness. This implies that innovativeness is coming from other scientific areas as well.
6. Public acceptance of S&T significantly correlates to national innovativeness. It is just another confirmation that social capital and social values play an important role in innovativeness.

If we put this short discussion on innovativeness into a broader perspective we could deduce that these relations are logically similar on the level of ICT industry and even on the level of an individual company. We use this discourse on innovativeness as an argument for a call that European universities must concentrate on innovativeness much more than now. This is a widely accepted suggestion, but too often misunderstood. Applied industrial projects are good news for universities, but only if they do not reduce the universities' capability to concentrate on their main mission. Particularly in ICT industry, university teachers and researchers often fall into temptation to engage in well-paid applied projects with a minimum scientific value. As a long-term strategy, industry should use universities primarily to raise its own innovativeness employing innovative graduates.

It is easier to say than do it. Particularly, the Central and Eastern European universities are simply not designed to concentrate on innovativeness. They focus only on knowledge. From the innovativeness point of view this is just half a job. To raise innovativeness, universities have to change the environment in which they educate their students. Today, studying is still an individual endeavor with very small attention paid to the development of students' social intelligence and innovativeness. They should prepare students for group

work, establish trust, open exchange of ideas and build an innovative environment. This is a challenge for our universities that is likely to be responded slowly because they have to change too many things simultaneously; from their internal organization to the attitude of tutors and students. ■

Accelerating innovation through partnerships: the role of universities

by Carlo Iantorno

Carlo Iantorno started with Microsoft in 1997, first as Strategic Relationship Manager and then in a number of marketing positions. Carlo is now the Microsoft Citizenship Initiative Manager, Italy. He also teaches Innovation and Web Marketing courses in several Italian universities.

Innovation and the role of universities

Innovation is the buzzword of this decade. In today's small and medium enterprises in Europe, information technology penetration is often poor and process automation, knowledge sharing and collaboration technologies are still at their early stage of deployment. Therefore IT-driven innovation to keep businesses on the competitive edge is a priority in many countries. In the consumer space, innovation means change in consumers' lives, habits, relationships made possible by technology. We see these "social innovations" in the way how people access information, interact with one another, learn, produce and publish knowledge and entertain themselves.

Universities have given a paramount contribution to primary research in information technology. But innovation is the coupling of fundamental advances with the ability to generate useful technologies, successful business models, new organizational processes and the proper mind share in society, in reasonable time frames and costs. In this sense, innovation today is still mainly produced outside academia.

Influencing the transformation

Educational and research institutions can and should have a role in the important transformations that await the knowledge society in the years ahead, but to do this often implies that their role needs to expand. These institutions can leverage their know-how and exposure to the international environment and can contribute to a successful knowledge transfer, becoming a *driver* for accelerating innovation adoption and for making the European countries contribute in an original way.

The following four areas are good examples of positive influence by universities.

1. Educating for the knowledge society

The primary role of higher education is to prepare the youth for the future. This means growing a new generation of people that can master the new elements that are changing society today. But we should also not underestimate an additional value that is somehow paired to this: supporting the growth of society so that innovation can accelerate.

There are therefore a *pull* stage and a *push* stage of interaction between universities and the knowledge economy: in the first one, universities get the advances that occur in the economy and use them to educate young people to the new paradigms. In the *push* stage, universities themselves help the local industry and the society overall to modernize and become more competitive.

Rather surprisingly, in Europe the highest unemployment and underemployment is among the young. At the same time, the demand for skilled workers outstrips supply and in 2008 there may be a shortage of up to half a million people across Europe in advanced networking and software technology skills.

2. Supporting the information economy

Information economy is the theory and practices of the rules of business of digital goods. An increasing share of the world's economy is driven by bits. Information economy has its rules, and markets driven by information are somewhat different from traditional markets[1].

Universities can contribute to the information economy development in a variety of ways: by driving the new economic rules into the mainstream courseware and growing specialists in the various disciplines; increasing the knowledge of the rules and behaviors with fundamental research in many of the areas impacted by the digital economy; piloting the strategic applications that will enable fast growth of the digital economy, especially in Europe.

3. Piloting the strategic applications

High-end education can have a role in scouting the new strategic applications needed for a firm take-off of the digital economy in many countries. This as a local effort since it will take place at different speeds and in different areas in each of the European nations.

One of these application areas is **tourism**, which can be of interest to the majority of countries. As we look into the tourist experience today, we see that there are several areas that can profitably be improved. By using new software applications, the tourist can have a wider experience and can travel more productively, gaining knowledge and deep understanding of the territorial culture, tradition and habits. Another potentially fast growth application area is the **digitalization of arts work**. This has been done with some success in few

[1] *Information rules*, C. Shapiro and H.R. Varian, 1999

museums around the world, but is still developing slowly.

Some of these areas still need some work to be proven, and universities can contribute in significant ways: business models, implementation and standards, initial design and piloting.

4. Contribution to transformation in SMEs

In some countries, smaller companies need help to implement innovation and increase their total competitive strength. For example, the average online sales in small companies in the EU is about 1% of total sales, which is quite low compared to the best-in-class, which is way above 3% (Norway).

Universities can be of important help to the transformation of the small business environment in many areas, such as in customer management and organization culture, market intelligence and advanced marketing.

Innovative practices need to be identified to increase the contact perimeter between businesses and universities. These include more time spent by the research staff with local companies, opening courses to external participants from industry, setting up formal partnerships between departments and business districts or associations, centers of innovation financed by business but driven by university researchers and senior students.

Corporate experiences: Microsoft initiatives

Microsoft has engaged in recent years in an increasing number of "citizenship" initiatives aimed at supporting innovation through the growth of the digital society, in partnership with local government and public and private institutions. In 2006 Microsoft formed the *European Alliance on Skills for Employability*[2], with a number of other business leaders and public institutions.

Other Microsoft programs have a broader scope and involve the IT ecosystem, fostering development and growth. Some of the most important ones are briefly described below.

Microsoft Innovation Centers have been created as a means to foster innovation and growth in local software economies. The Centers are focused on planning, researching, and developing innovative software solutions with industry, academic, and government players. Today the network consists of more than 110 Centers in 60 nations, with programs that include training on software development, business skills and market development. The centers also foster software industry clusters, software quality certification programs, proof-of-concept projects and workshops for software companies.

The European Science Initiative (ESI) is focused on enabling and accelerating new 'kinds' of science and computing – important new fields now emerging at the intersection of both. Two major joint Research Centers have been established in Europe. The first is the *Centre for Computational and Systems Biology*, a joint venture between Microsoft, the Italian central and local governments, and the University of Trento in Italy. It is operating in the convergence of life sciences and computer science to develop new conceptual and computational tools to enhance our understanding of dynamic evolution of biological systems. The second is the *Microsoft Research-INRIA Joint Centre***,** created by the French Ministry of Research, Microsoft and INRIA, the French national institute for research in computer science and control. Research at the Centre will investigate the application of mathematics to improve software and systems security, and the development of software tools for management and analysis of increasingly highly complex scientific data.

The Microsoft IT Academy is a program designed to help students master technology skills that prepare them for today's workplace and to give workers an opportunity to improve technology competencies. The program, available in more than 100 countries, is open to accredited academic institutions, including primary, secondary, post-secondary, trade or technical institutions, and sources of continuing education.

The Students to Business Program to Develop Skills for Europe has the objective of allowing graduating technical students to accelerate their entry in the job market. The students are offered internship positions in innovative software companies – partners of Microsoft – that will provide them with often valuable experience and allow them to expand their skills. ■

Vocational Education and Training: The Call for Multi-Stakeholder Partnership

by Hugo Lueders

Hugo Lueders is Secretary General of the "European e-Skills Competences Consortium" (e-SCC). He is also Director of the "Computing Technology Industry Association" (CompTIA) for Public Policy in Europe, Africa and Middle East (EMEA) and European Director of the "Initiative for Software Choice" (ISC), a global industry coalition on tech-neutrality in software and hardware public procurement managed by CompTIA.

DISCLAIMER: The views expressed herewith are purely those of the author and may not necessarily be regarded as stating an official position of the e-Skills Competences Consortium

[2] European Alliance on Skills for Employability: http://www.e-scc.org/alliance/

Executive Summary

Every economy has a driving force. The agricultural economy relied on land, while the industrial economy leveraged machines. Two critical commodities anchor the knowledge economy of the 21st century: people and knowledge.[1]

Several important surveys, studies and white papers produced in the past few years have highlighted the growing importance of the knowledge-based economy for 21st century growth, prosperity and political stability. Many of them have been produced in the context of the European Union's Lisbon Agenda, re-launched in 2005 with even more emphasis on the key role of Information and Communication Technology (ICT) to European growth and competitiveness, and a heightened sense of urgency in matching skills to emerging and changing technology, and to job specifications.

In its 2004 paper [2], CompTIA cited the statement above, and also quoted from the World Bank that "creating and exploiting ideas are the primary means to prosperity in today's knowledge-based economy" observing that people are the critical commodity of the 21st century.

Multi-Stakeholder Partnerships for Education

The private sector has already developed schemes that allow transferability of skills between national markets, but the lack of sufficient mutual recognition arrangements between national public health education and industry certification systems can affect worker mobility. This can risk depriving companies of the skilled individuals it needs, and limit the working opportunities of an increasingly international group of workers.[3]

Partnerships between business, government and the third sector civil society are a growing feature of both industrial and emerging economies. Such multi-stakeholder partnerships (MSPs) are necessary because it is increasingly clear that no single sector in society can deliver the complexities of sustainable development and education in today's global economy.

MSPs build on the idea that the business sectors can complement, supplement and extend services provided by the public sector by increasing the available resources. Another advantage is utilising and combining the respective strengths and resources of the different actors, and compensating for each other's respective weaknesses. [4]

The challenge is to apply the lessons learned from "e-Skills capacity building" for sustainable education and labour competences. Many agree that this can best be done through the tool of multi-stakeholder partnerships. There is also wide agreement that these MSPs must include universities.

Due to the speed of technological development, public education/training modules often lack professional qualifications in line with demand and new market trends.

Multi-Stakeholder Partnerships have been identified as the main tool to bridge the "parallel universes" between formal and non-formal education and training through integration and inclusion of industry-based certifications into traditional, State-recognised training and portals-frameworks.

In the global arena, the World Economic Forum and UNESCO have created "Partnerships for Education" (PfE), to work collaboratively with other global initiatives and deliver effective private sector contributions to "Education for All" goals. PfE will provide specific help in crafting and sustaining what the Forum and UNESCO call "Multi-Stakeholder Partnerships for Education" (MSPE). [5] One can envisage how this PfE initiative could be applied specifically to "MSPEs" for ICT education and building e-competences.

CONCLUSION

The emerging life-long learning paradigm of the 21st century implies a ***stronger role for key stakeholders*** *compared to the past. … Co-operation between users and providers of e-skills employability alike will enable people to acquire the capabilities they need to actively and continuously participate in an inclusive world economy.*[6]

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[1] ASTD (American Society for Training & Development) Public Policy Council (2003), in : CompTIA, *The Situation and the Role of E-Skills Industry Certification in Europe*, prepared on behalf of the eSkills Certifications Consortium, for the European e-Skills Conference, September 2004, Thessalonica, Greece, p 10, see: http://www.e-scc.org/docs/e-Skills_report_Thessalonika_2004.pdf

[2] CompTIA, ref. 3, p. 10

[3] Taskforce on ICT Competitiveness and ICT Up-take, Working Group 5 -- Skills and Employability, European Commission, *Topic Paper*, September 26, 2006 draft, p 10

[4] e-SCC, Issue Paper for the "European Skills Forum": *eSkills Public-Private Partnerships*, 24 March 2004, p 4, see: http://www.e-scc.org/docs/PPP_eSkills_ Forum_Final.doc

[5] World Economic Forum and UNESCO Partnerships for Education, http://weforum.org/en/initiatives/gei/partnershipsforeducation

[6] "The Tunis e-Skills Declaration, e-Skills Capacity Building for Growth and Employability", World Summit on the Information Society, 16 November 2005, see : http://www.e-scc.org/docs/Tunis_Declaration_EN.pdf

The multi-stakeholder process needs to address potential barriers and resistance, put in place transitional mechanisms and create positive incentives for change that leverage the creative potential of the different actors, allowing them to work on established as well as new roles and responsibilities. This process will vary from country to country as the strategic framework is translated into action. [7]

Some questions that might be used to assess the effectiveness of MSPs for e-skill competences might be:

- Do frameworks established through MSPs enhance support and recognition/endorsement of industry-based e-skills training and certifications to bridge formal and non-formal ICT education, self-training and certification?

- To what extent have EU Member States been encouraged to remove any barriers in their funding for education and training that impede vocational education/ACE actors and commercial trainers offering industry-based curricula and certification?

- How has multi-stakeholder networking that promotes e-skills capacity building and vocational training partnership throughout the learning value chain been encouraged? Has this networking delivered a range of choices for ICT professionals and users at all levels?

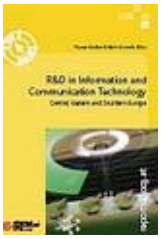
- Have MSPs led to the provision of urgently needed fiscal incentives or other forms of financial basic income support options to encourage the pursuit of e-skills that are tested, recognised and certified?

It is vital to raise awareness in academic and policy-making circles about the value of market-recognised e-skills credentials, and also to raise awareness about the value of multi-stakeholder partnerships to bridge the gap between industry and public resources/needs. ■

New IT STAR Book

R&D IN INFORMATION AND COMMUNICATION TECHNOLOGY

Plamen Nedkov & Balint Domolki (Eds)
ISBN 978-3-902580-02-3
Publisher: OCG



This publication contains the proceedings of the 1st IT STAR Workshop on R&D in ICT (11 November 2006, Bratislava, Slovakia) which had the Mission to "investigate the current state of the ICT related R&D environment in Central, Eastern and Southern Europe so as to draw conclusions and recommendations to facilitate policy-making within the Region and the European Union".

The book consists of an introduction, the conference documents, a series of detailed national reports outlining the R&D landscape of the countries with specific emphasis on R&D in information and communication technologies, conclusions and recommendations. The reports are presented in the context of the general situation of information society development and include data on important topical orientations and major players in the R&D scene with factual information and appraisals of the national R&D policies and practices.

For orders please check http://www.ocg.at/bookshop/

■

[7] e-SCC, ref 6, p 5

CEPIS
Council of European Professional Informatics Societies

The Council of European Professional Informatics Societies (CEPIS), as representative of the European Network of Informatics Professionals, is focusing on taking part in European initiatives to represent its Member Societies and to help improve the development of ICT Skills coordination at European level. Currently CEPIS is the project leader for Harmonise, a 36 month project funded by the European Commission under the Leonardo da Vinci Program of DG Education and Culture.

Harmonise aspires to establish comparable data on ICT vocational training systems and various approaches to ICT qualification and ICT certification in participating countries. The project aims to provide recommendations for the stakeholders in order to work towards the convergence of existing approaches to e-skills certification in Europe and beyond. In order to concentrate on the different scopes of the certification schemes, the study has been divided into four areas:

- **Demand and Supply** analyses the situation, the need and the importance of the certifications in the labour market.
- **e-Skills Certification** studies the certifications available at national or European level concerning their value, their importance and their specifications.
- **Market** concentrates on the organisation of the certification market in Europe.
- **Quality Assurance** of the certification schemes.

CEPIS acts as coordinator of the project. AIFB (University of Karlsruhe) and IFS (Institute for Future Studies) are the scientific leaders and are helped by the BCS (British Computer Society), AICA (Associazione Italiana per l'Informatica ed il Calcolo Automatico), GI (Gesellschaft für Informatik eV), NJSZT (John v Neumann Computer Society), the ECDL Foundation (European Computer Driving Licence Foundation) and EITS (Estonian Information Technology Society). In the long run the project intends to contribute to the actual developments towards the possible harmonisation in the field of ICT qualifications for ICT practitioners in the context of lifelong learning, drawing and building on the successful experience of the ECDL (European Computer Driving Licence).

To find out more about Harmonise visit http://www.cepis-harmonise.org

www.cepis-harmonise.org

harmonise IT
Toward Harmonisation of Information Technology Learning in Europe

Education and Culture
Leonardo da Vinci

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Member Society News

Austria

OCG has a busy events schedule with the following conferences coming soon:

- ICKM 2007, 4th International Conference on Knowledge Management, 27.-28.08.2007
- I-Semantics '07, International Technology Conference, 05.-07.09.2007, Graz
- ISMIR 2007, 8th International Conference on Music Information Retrieval, 23.-27.09.2007, Vienna
- VLDB 2007, 33rd International Conference on Very Large Databases, 23.-28.09.2007, Vienna

For the details and conference web-sites visit www.ocg.at

Croatia

The 19th International Olympiad in Informatics (IOI) http://www.hsin.hr/ioi2007/ will be held on 15-22 August 2007 in Zagreb, Croatia.

Each country participates at the IOI with a national delegation, consisting of four contestants. Contestants are students who were enrolled at a secondary education school in the country they are representing during the period September to December 2006 and are not older than twenty years on the 1st of July 2007. The official IOI web site is http://www.ioinformatics.org and the site of the IOI Secretariat web is http://olympiads.win.tue.nl/ioi/

IOI is an annual leading computer science competition with tasks of algorithm nature, however the contestants have to show basic skills as problem analysis, design of the algorithm needed, data structures, as well as programming and testing of their solutions. The winners of the IOI are among the brightest young computer scientists of the world.

The IT STAR Region is very active in the organization of this prominent event – the 1st IOI was organized in Pravetz, Bulgaria in May 1989. Greece held the 3rd and the 16th IOI, respectively in 1991 and 2004 and Hungary was the host of the 8th in 1996.

Several of IT STAR's member societies have been actively involved in the organization of the IOI series *(there is an article in Vol. 3, n.1, Autumn 2005 of the NL about the GCS involvement and information in Vol.5, no.1, Spring 2007 about AICA's involvement).*

Czech Republic

Forthcoming Event

HARRACHOV 2007 - Computational Methods with Applications
August 19 - 25, 2007, Harrachov, Czech Republic
Organizer: Institute of Computer Science, Academy of Sciences of the Czech Republic

harrachov@cs.cas.cz http://www.cs.cas.cz/~harrachov

Italy

AICA is busy in preparing Congresso Nazionale AICA 2007, which will be held in Milan on 20-21 September and in Mantova on 27-29 September.

The details are available at
http://www.aicanet.it/convegni/1070929.htm

■

Who hits most?

An analysis of the incoming traffic at www.itstar.eu shows that the IT STAR web pages are most frequently visited by way of the **.com** and **.net** domains.

Italy's **.it** is a clear leader among the national domains with the most hits at the IT STAR web pages, followed by **.at.**

The next group includes in descending order **.yu**, **.hu, .sk**, **.be** and **.lt.**

Then follow **.ch, .ro, .si, .cz, .nl, .de, .au, .pl, .fi, .pt, .int, .ar, .edu, .org, .in, .uk, .bg, .us, .ee, .fr** and other.

Type of organization

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

Web-site

www.itstar.eu

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
- Bulgaria (2003) K. Boyanov
- Croatia (2002) M. Frkovic, M. Glasenhart
- 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
- Romania (2003) V. Baltac
- Serbia and Montenegro (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, which convenes biannually:

2007 Genzano di Roma, **Italy** (May)

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

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

Major Activities

- 1st IT STAR WS on R&D in ICT
  http://www.starbus.org/r_d_ws1/r_d_ws1.htm
- IT Professional Pool Database (in progress)
- Workshop and publication on National Experiences related to the EU's 5th and 6th FP
  http://www.starbus.org/download/supplement.pdf
- Joint IT STAR – FISTERA Workshop on ICT and the Eastern European Dimension
  http://fistera.jrc.es/pages/roadshows/prague%2004/FINAL%20REPORTrevised.pdf
- Support to Member Society initiatives and events

Periodicals

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

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