GLOBAL FORUM

Shaping the Future

2009

ICT & THE FUTURE OF INTERNET

Opportunities for Stimulating & Reshaping the Economy

Conference Proceedings

Monday, October 19th, 2009
Tuesday, October 20th, 2009

Palace of The Parliament
Bucharest, Romania

ITEMS INTERNATIONAL

MINISTRY OF COMMUNICATIONS AND INFORMATION SOCIETY

ANCOM
National Authority for Management and Regulation in Communications of Romania

FONDATION SOPHIA ANTIPOLIS

contents

acknowledgements 3

programme 6

about the global forum 21

think tank synthesis report 22

contact 205

acronyms & abbreviations 206

Report written by
Susanne Siebald, Communications Consultant,
and **Tom Mackenzie, Items International**

acknowledgements

The Global Forum in Bucharest welcomed more than 450 high-level delegates from 35 different countries across the world who attended the conference sessions taking place on 19 & 20 October at the Parliament Palace in Bucharest. It seems symbolic of the changing era that Global Forum's open debates took place in a building which once allowed no alternative opinions.

Organizing an event like this requires an enormous commitment of the people involved in its preparation and we would like to express our appreciation for the excellent work done by our Romanian partners. They did an outstanding job on the planning and execution of the Global Forum 2009.

We would like to express our sincerest thanks to the Office of the President of Romania. It has been a great honour to welcome President Traian Băsescu at this eighteenth edition of the Global Forum.

We would like to acknowledge the support of the Ministry of Communications and Information Society in our endeavour to bring Global Forum 2009 to Romania. Special thanks to Monsieur Le Ministre Gabriel Sandu, and Mr Radu Bogdan Savoanea for their outstanding help and support.

Thanks also to the Foundation of Young Managers of Romania with its President, Marius Bostan. Thanks to Virgil Stan who lobbied for four years to bring the Global Forum in Romania and who is our general manager of the event here.

This eighteenth Global Forum has been organized with special support from a number of companies and organisations recognizing the importance of such an event. Without their help, this conference would not have been possible and we would like to deeply thank

our partners, which are:

> the European Commission, Romanian Intelligence Service SRI, National Foundation of Young Managers FNTM, American Chamber of Commerce in Romania, Association of Municipalities in Romania AMR, Prefecture of Bucharest

the main sponsors of the Global Forum 2009, which are:

> **IBM, ROMTELECOM, COSMOTE, Microsoft, Verizon, Consip, SIEMENS, AT&T, Visa, ERICSSON, European Privacy Association, EADS, Hewlett-Packard, HUAWEI, Intel, Qualcomm, OMNILOGIC, Afilias, White & Case, VMB, Proxim, Postelink, veryPC**

as well as the supporting sponsors, which are:

> IS-practice, Wethington International LLC, Global Cities Dialogue, PTI, Major Cities of Europe IT Users Group, Euromed Innovation Network, ENSA, Gov2u, European Council, ANUIT, Politech Institute

Last, but definitely not least, let us say thank you to the Global Forum's principal actors, who are its keynote speakers, chairs, moderators, panellists and participants for their enthusiasm and for having made of the Global Forum once again a high level Think tank as it has been referred in the international press.

We are counting on all of you as global partners and friends to carry on the vision of the Global Forum to shape the future together and look forward to seeing all of you at the nineteenth Global Forum in Washington DC, USA. In the meantime thank you again for your continuing support and keep on networking!

Sébastien Lévy
Vice-President of the Global Forum

Sylviane Toporkoff
President of the Global Forum

The Global Forum 2009 was realized with the active and efficient support of its

Main Sponsors

And with the friendly support of its

Supporting Sponsors

19 October 2009

1ST DAY • WELCOMING ADDRESS AND OPENING SESSION • p 23

Chair & Moderator: **Sylviane Toporkoff**, President Global Forum & Founder Partner Items International, France

Keynote Speakers:

Traian Băsescu, President of the Republic of Romania
Urban Funered, Special Advisor, Ministry of Finance, Sweden
Swedish EU Presidency 2009 Teaming up for the eUnion!
Mark Gigenstein, Ambassador, Embassy of the United States, Romania
Thomas Rosch, Commissioner, Federal Trade Commission (FTC), USA
Gabriel Sandu, Ministry of Communications and Information Society, Government of Romania
Pierre Laffitte, President Sophia-Antipolis Foundation; Honorary Senator named by the French President Nicolas Sarkozy Head of Mission in the Framework of the UPM (Union for the Mediterranean), France
Yorgos Ioannidis, CEO, Romtelecom, Romania
Gerard M. Mooney, General Manager Global Government and Education, IBM, USA
Government Takes on Expanded Roles as the World Moves Through Recession

Chair: **Jacquelynn Ruff**, Vice President, International Public Policy & Regulatory Affairs, Verizon, USA

Moderator: **Giorgio Prister**, Major Cities of Europe, Italy

Speakers:

Joao Schwarz da Silva, Director, Converged Networks & Services, DG INFSO & Media, European Commission
Future Internet – Europe in Action
Mario Agati, Vice President Multimedia & System Integration, South East Europe, Ericsson, Italy
Infrastructure 2.0 – The Infrastructure Game
Margarete Donovang-Kuhlisch, European Government Industry Technical Leader, IBM, Germany
New Broadband and Dynamic Infrastructures for the Internet of the Future
Alin-Valdimir Stanescu, Government Affairs Europe, Qualcomm, Belgium
Maximizing the Wireless Opportunity to Close the Digital Gap
Cătălin Marinescu, President of ANCOM, National Authority for Management and Regulation in Communications of Romania, Romania
The Romanian Electronic Communications Market in the Context of the Economic Downturn
Yu Xiao Hui, Director of Institute of Economy and Policy, Deputy Chief Engineer, China Academy of Telecommunications Research (CATR), Ministry of Information Industry, China
Broadband In China: Status and Challenge
Maria Kendro, Executive Director, Communications Cooperative International (CCI), USA
Bottom Up, Community-based Solutions for Reducing the Digital Divide
Brent Olson, Assistant Vice President - Public Policy, AT&T, USA
Broadband Opportunities and Challenges in the United States

Chair: **Jean-Pierre Chamoux**, Professor Paris V-René Descartes University, France

Speakers:

Boaz Dolev, Director e-Gov Department, Ministry of Finance, Israel
Israel e-Gov Strategy
Robert Hensler, State Chancellor, State of Geneva, Switzerland
Thaima Samman, Senior Director/Associate General Counsel, Corporate Affairs/Corporate Social Responsibility, Microsoft EMEA, France
IT Sector's Share in Building Local Economies
Mary Tovšak Pleterski, Principal Adviser to the Director General, DG INFSO & Media, European Commission

Chair: **Gerard M. Mooney**, General Manager Global Government and Education, IBM, USA

Moderator: **Hugo Kershot**, Founder IS-Practice, Belgium

Speakers:

Danilo Oreste Broggi, Chief Executive Officer, Consip S.p.A., Italy
e-Procurement for Economic Recovery
Peter Sonntagbauer, Management Consulting Bundesrechenzentrum GmbH; Public Relation-Director Project "Pan European Public Procurement Online –PEPPOL", Austria
PEPPOL
Jeremy Millard, Senior Consultant, Danish Technological Institute, Denmark
eGovernment: From Smarter Governments to Empowering Citizens
Kevin Laing, Head of Finance - Systems and Controls, Newcastle Upon Tyne City Council, United-Kingdom
Conditions of Transformation & Collaboration between Agencies
Odisseas V. Raptis , Chief Executive Officer e-Trikala, The City of Trikala, Greece
e-Democracy & e-Participation -- Empowering Citizens
Christos Chrysos, Project Manager, Open Technology Services S.A., Greece
Integrating the Drivers of e-Participation at Regional Level in Europe
Jakob H. Rasmussen, Chairman Living Labs Global, Denmark
Your Market for Mobility
Alan Shark, Executive Director, Public Technology Institute - PTI; Assistant Professor, Rutgers University School of Public Affairs & Administration, USA
How We Can Measure the Smartness of Government; the Power of Citizens?
André Crucera, Public Sector Manager, Hewlett-Packard, Romania
IT make Citizen's Life Better

Chair: **Denis Gardin**, Group Vice President, Head of EADS System Design Center & EADS CyberSecurity Customer Solutions Center, EADS Defense and Security Division, European Aeronautic Defence & Space Company, France
Bringing Security to the Cyber World

Moderator: **Michael Stankosky**, Professor Systems Engineering, George Washington University, USA

Speakers:

Sezen Yeşil, ICT Expert, Information and Communication Technologies Authority of Turkey - ICTA, Turkey
Cyber Security in Turkey
Jacob Arenander, Senior Product Manager, VP Securities A/S, Denmark
Annual General Meetings in Cyberspace
Frank Leyman, Manager International Relations, Federal Public Service for ICT - FEDICT-, Belgium
The STORK Project
Maury D. Shenk, Managing Partner, Steptoe & Johnson, United-Kingdom
Information Security & Identity
Augustin De Miscault, Member Cyber Security Center, European Aeronautic Defence & Space Company -EADS- Defence and Security, France
The FC² project
Vassilia Orfanou, Communication Officer, ePractice.eu, European Commission
The European eID Observatory on ePractice
Vasilis Koulolias, Executive Director, Gov2U, Greece
Victor-Emmanuel de Sa, Partner Geneva Solutions, Switzerland
Innovation Precautions
Yves Paindaveine, ICT for Trust and Security DG INFSO & Media IST Programme, European Commission
Future Internet Trust & Security
Patrick Francis, Executive Expert Cyber Security, EADS Defence & Security Systems, United-Kingdom
Federated Identity Management as a Managed Service
Iulian Fota, National Security Advisor to the President of Romania
IT&C Development Impact on Globalisation

Chair & Moderator: **Octavian Purcarea**, WW Health Industry Solutions Manager, Microsoft EMEA, France

Speakers:

Ingrid Andersson, Senior Executive Advisor, Patient Certificate Scheme, Sweden
Turning the Tide on e-Health: New Learning Curves
Raed Arafat, State Secretary, Ministry of Health, Romania
Emergency Medicine in Romania - Using Telemedicine in Emergency Care
Paolo Balboni, Fellow European Privacy Association - EPA, Belgium
Cloud Computing for eHealth
Judith Carr, Founder and CEO Envision Consulting LLC, USA
E-Health: Transformation Beyond Technology
Elinaz Mahdavy, European Affairs and Strategic Partnership Manager, Orange Healthcare, France
FT Group Telecom Contribution to the e-Health Innovative Services
Thomas Osburg, Director Europe Corporate Affairs, Intel Corp, Romania
Mario Po', Executive Director, Azienda ULSS n 8 Asolo, Italy ; & **Paolo Barichello**, ICT Manager, Azienda ULSS Asolo, Italy
Advices in the Road-Map of eHealth Projects
Philippe Scheimann, CEO, Ayala Alternative Organizational Consulting, Israel; Founder ComparSante.fr, France
eHealth 2.0 Price Transparency Solution
Michèle Thonnet, Official Representative e-Health France, Responsible for European and International Partnerships and Relations, Ministry of Health, France
eHealth & Health Challenges & Expectations
Mary Tovšak Pleterski, Principal Adviser to the Director General, DG INFSO & Media, European Commission
Innovation in eHealth & Sustainability

Chair & Moderator: **Andrew Lipman**, Partner and Head of Telecom Group, Bingham McCutchen, USA

Speakers:

Christopher J. Boyer, Public Policy Group, AT&T, USA
ICT and the Future of the Internet: Regulatory Challenges – Network Neutrality
Bogdan Dospinescu, Head of Tariff Regulation and Universal Service, National Authority for Management and Regulation in Communications of Romania -ANCOM-, Romania
A Wide Digital Divide and its Challenges – Addressing the Lack of Broadband Access in the Rural Areas of Romania
Thomas Hart, EU-China Media and Communications Policy Advisor, Hart-Consult Associate, GOPA Consultants, China
From "Watching TV" to "Using AV": Converging Services – Converging Regulations?
Bonnie Peng, Chairperson, National Communications Commission - NCC, Taiwan
Bridging the Digital Divide in Rural Taiwan
Jacquelynn Ruff, Vice President, International Public Policy & Regulatory Affairs, Verizon, USA
Broadband Cycle of Innovation
Gérald Santucci, Head of Unit "Networked Enterprise and RFID", DG INFSO & Media, European Commission
Internet Governance
Theresa Swinehart, Vice President Global and Strategic Partnerships, Internet Corporation for Assigned Names –ICANN, USA
Telecom and Internet Regulatory Challenges and Opportunities – Names, Numbers, Internet Governance
Ma Yuan, Division Director of Institute of Economy and Policy, China Academy of Telecommunications Research -CATR-, Ministry of Information Industry, China
Net Neutrality and the Latest Trend in China

Chair: **Olin Wethington**, President Wethington International, USA

Keynote Speakers:

Doina Banciu, General Director, National Institute for Research and Development in Informatics - ICI; Professor at the University of Bucharest, Romania
Digital Culture and Informing the Citizen – First Step in Re-shaping the Economy - e-Romania Concept
Mark Cleverley, Director for Strategy, Global Government Industry, IBM, USA
Gyorgy Csepeli, Public Policy Director, Secretariat of the Commissioner of Infocommunications, Prime Minister's Office, Hungary
ICT and Recovery: The Digital Public Utility
John Keogh, Senior General Counsel, Canadian Radio-Television and Telecommunications Commission - CRTC, Canada
Sebastián Muriel, General Manager of the Public Corporate Company, Red.es, Spain
Plan Avanza, ICT & the Future of the Internet
Najat Rochdi, Deputy Director Geneva Office, United Nations Development Programme – UNDP

Chair: **George Makowski**, Chief Commercial Officer, Business Segment, Romtelecom, Romania

Moderator: **Jay Gillette**, Professor, Center for Information and Communication Sciences, Ball State University; Advisory Council Pacific Telecommunications Council, USA

Speakers:

William S. Coats, Intellectual Property Partner, White & Case LLP, USA
Digital Content and the Media of the Future
Luis Rodriguez-Rosello, Head of Unit "Networked Media Systems", Directorate General INFSO & Media, European Commission
Networks and Media: Trends and Prospects in EU Research
Thomas Hart, EU-China Media and Communications Policy Advisor, Hart-Consult; Associate, GOPA Consultants, China
Regulatory Challenges for Virtual Worlds
Said Al Adawi, Director General of Higher Education Admission, Ministry of Higher Education, Sultanate of Oman
Technology Impacts in Facilitating Applicants Admission in Higher Education Institutions in the Sultanate of Oman
Eric Legale, Managing Director, Issy Media, City of Issy-les-Moulineaux, France
Managing Public Information in the Digital Age
Ana-Maria David, Special Projects Coordinator HotNews.ro, Romania
Hotnews.ro - Online Media in Romania
Alfredo M. Ronchi, EC Medici Framework, Politecnico di Milano, Italy
Content Formats Media
Sarah Xiaohua Zhao, Legal Counsel, Coan & Lyons, USA
China New Rules - Three Networks Convergence

Commentator:

Hervé Rannou, President Items International, France

Chair & Moderator: **Cătălin Marinescu**, President, National Authority for Management and Regulation in Communications of Romania - ANCOM, Romania

Speakers:

- **Ruprecht Niepold**, Adviser with Special Responsibility for the Future Development of the Spectrum Policy, DG INFSO & Media, European Commission
  Wireless Broadband Communications in Context: Needs, Initiatives, Opportunities, Challenges in the Context of Radio Spectrum Policy
- **Finn Petersen**, Deputy Director General, National IT and Telecom Agency - NITA, Denmark
  Policy Objectives and Lessons Learned
- **Pablo Brito**, Vice Director EU Wireless Marketing, Huawai Technologies Co. Ldt, Germany
  Enabling Mobile Broadband for All with Single RAN
- **Christoph Legutko**, Wireless Standards and Regulations Manager, Intel Corporation, Romania
  WiMAX: Enabling Mobile Broadband
- **Mats Nilsson**, Vice President and Head European Affairs Office, Ericsson
- **Dorin Odiatiu**, Marketing Director, Orange Romania
  Enablers for Mobile Broadband Wireless Access
- **Costas Kapetanopoulos**, Marketing & Communication Division Director, Cosmote Romania
  100% Broadband Coverage – The Next Challenge
- **Mihai Tarniceanu**, Associate Director, Regulatory Affairs, Vodafone Romania
- **Ovidiu Ghiman**, Chief Strategy & Business Development Officer, Romtelecom, Romania

Chair: **Marius Fecioru**, Secretary of State, Ministry of Communications & Information Society, Romania

Moderator: **Hellmuth Broda**, Information Technology Advisor, Dr. Hellmuth Broda Consulting, Switzerland

Speakers:

Benedikt Klotz, Public Sector Industry Leader, IBM SWG Central and Eastern Europe, IBM Corporation, Austria
Smarter Cities: How Cities can Lead the Way into a Prosperous and Sustainable Future
Margarete Donovang-Kuhlisch, European Government Industry Technical Leader, IBM, Germany
Smart e-Government Services for Citizens and Enterprises
Gérald Santucci, Head of Unit "Networked Enterprise and RFID", DG INFSO & Media, European Commission
A Guide Through the 2009-10 Work Programme: Focus on Calls 5 and 6
Victor Pânzaru, OIPSI Director, Ministry of Communications and Information Society, Romania
Information Technology and Communication for the Private and Public Sector
Radu Comsa, Counsellor to the Ministry of Regional Development and Housing, Romania
Regional Operational Program 2007-2013
Marius Bostan, President, National Foundation of Young Managers FNTM, Romania
Enriching the Managerial Culture in Romania

Chair: **Peter Hopton**, Managing Director, VeryPC, United Kingdom
Green IT Technology

Moderator: **Dani Flexer**, Consultant, Datacentre Optimization, United Kingdom

Speakers:

Bruno Pennino, Public Sector, Marketing Executive North East and South West Europe, Global PS Marketing Leadership Team Lead, IBM, Italy
A Smarter Planet is Greener
Loris Di Pietrantonio, Policy Officer, ICT Addressing Societal Challenges, DG INFSO & Media, European Commission
The European Commission's Framework for Environmentally Responsible ICT
Lidia Capparelli, Head of the Sustainability Unit, Consip S.p.A., Italy
The Future is Green
Marius Opran, Member of the Executive Bureau European Economic and Social Committee, Romania
Fighting Against Global CO2 Emissions, Including the Contribution of ICT
John Frieslaar, CTO for Key Accounts in European Region, Huawai Technologies Co, United Kingdom
Using Telecommunications to Reduce Environmental Impact
Varujan Pambuccian, Member of the IT Commission of the Romanian Parliament, Romania
Intelligent Green Architectures
Sebastian Banica, Senior Director Direct Sales Omnilogic, Romania
The Future is Green

Chair: **Bror Salmelin**, Adviser to the Director ICT Addressing Societal Challenges, DG INFSO & Media, European Commission

Moderator: **Dan Iscru**, FNTM Lecturer/ e-Learning Project & Senior Partner, VMB Partners, Romania

Speakers:

Hervé Rannou, President Items International, France
Local Ecosystem… Beyond the Words
Dorin Florea, Mayor City of Târgu Mureş & Vice President of Association Municipalities of Romania
European Digital City based on the SVN Concept
Adrian Apolzan, President of the Association for Electronic Payments in Romania – APERO, Head of Cards ING Bank, Romania
Catalin Cretu, General Manager, Visa Europe, Romania
How Payment Systems Help Limit the Shadow Economy in Romania
Bogdan Găurean, Deputy General Director, National Trade Register Office, Romania
Online Services Offered by the National Trade Register Office (NTRO) for the Business Community Through a Dedicated Portal
Ionut Taranu, Development Director, Eurado Project, Romania Eurado
Public-Private Online Social Network
Ana Maria Mihaescu, Chief of Mission, International Finance Corporation, Member of the World Bank Group
Local Administration and Finance
Valentin Miron, President, VMB Partners S.A., Romania
Multi-Year Capital Investment Planning - "e-My CIP" : New Solutions for Cities

Chair & Moderator: **Pierre Laffitte**, President Sophia-Antipolis Foundation; Honorary Senator named by the French President Nicolas Sarkozy Head of Mission in the Framework of the UPM (Union for the Mediterranean), France

Speakers:

Timo Haapalehto, Innovation Policy Development Unit, European Commission
Gabriel Mergui, Director, Genopole International, France
Sharing tools with Mediterranean Players -- The example of the EU Project: Bio-CT (European Biotechnologies Common Tools)
Alain Renck, Director of the International, OSEO, France
Zoltan Bendo, Senior Program Manager, Pole Program Office, Hungary
Status of the Pole Programme and Cluster Development in Hungary
Candace Johnson, President, Johnson Paradigm Ventures, France
Smarter Governments: Empowering Citizens – Putting the Power into Private Entrepreneurs and Private Investors for Early Stage Innovation and Investment
Jean-Yves Leost, Executive Manager International Affairs, RTE, France
The Development of the Euro-Mediterranean Electricity Market
Chrystel Simone, Engineer Eco-Conception, Centre d'Animation Régional en Matériaux Avancés -Carma, France
An Eco-Design Center in Sophia-Antipolis
Thierry Bièvre, Managing Director Elithis Ingenierie, France
The ELITHIS Tower
Eunika Mercier-Laurent, President, Global Innovation Strategies, France
Virtual Knowledge Space for UFM – An Amplifier of a Sustainable Innovation@the Speed of Thought
Maledh Marrakchi, Advisor to the CEO, Tunisie Telecom, Tunisia
Euro-Med Innovation Network: "Tunisian Case"

Chair & Moderator: Giorgio Prister, President, Major Cities of Europe

Speakers:

Mihai Cristian Atanasoaei, Prefect, the Bucharest Prefecture, Bucharest City, Romania
The Bucharest Digital Prefecture -- E - Government in the Citizen's Interest
Raed Arafat, State Secretary, Ministry of Health, Romania
Integrated Emergency Services in Romania
Eric Legale, Managing Director, Issy Media, City of Issy-les-Moulineaux, France
The Example of Issy-les-Moulineaux
Odisseas V. Raptis, Chief Executive Officer, e-Trikala, City of Trikala, Greece
Innovation and Quality Cities, Servicing the Citizens
Kao Hui Chun Sha, Special Assistant General Director Office, Information & Communications Research Lab. – ICL - Industrial Technology Research Institute, Taiwan
WA! M-Taiwan Sailing into the Future
John Jung, Chairman, Intelligent Communities Forum - ICF, USA
Creating an Intelligent City - The Global ICF Experience
Alan R. Shark, Executive Director & CEO, Public Technology Institute – PTI and Assistant Professor, Rutgers University School of Public Affairs & Administration, USA
Technology Leadership: Structures and Skills (How Do We Get There?)
Peter Held, Regional Director Central & Eastern Europe, Proxim Wireless, Germany
The Broadband of Tomorrow
Diana Stangu, Account Executive, Public Sector, Siemens IT Solutions and Services, Siemens Romania
The Virtual City Hall
Zoltan Somodi, General Manager, Matrix Business Consulting, Former State Secretary in the Ministry of Communications and Information Society, Romania
European Funds for Modern Local Governments
Istvan Besenyei, Country Manager, VAMED, Romania
Public Private Partnership: A New Approach in Healthcare

about the global forum

The “Global Forum on Shaping the Future” is an annual, independent international event dedicated to business and policy issues affecting the successful evolution of the Information Society. As a high-profile international Think Tank, bringing together senior government officials, policymakers and industry leaders from Europe, North and South America, the Pacific Rim and Africa, the academia, and the civil society – both from advanced and developing economies, its main purpose is to promote interaction and dialogue between the different stakeholders, to give impulses for the formulation of common visions, and to pool knowledge, expertise, research, policy analysis and networking capability.

The “Global Forum on Shaping the Future” is a not-for-profit initiative of ITEMS International. It is sponsored by organisations from all over the world, interested in sharing and influencing global IT-agendas, and enabling business and government leaders from all sectors of the ICT communities to meet and work with suppliers and service providers.

THE GLOBAL ROADMAP

2009 ICT & The Future of Internet – Bucharest, Romania

2008 Collaborative Convergence – Athens, Greece

2007 Global Convergence 2.0 – Venice, Italy

2006 The Digital Convergence – Paris, France

2005 The Broad Convergence – Act II – Brussels, Belgium

2004 The Broad Convergence – Malmö, Sweden

2003 Connecting Businesses & Communities – Rome, Italy

2002 The Promise of Broadband Services – Washington DC, USA

2001 Expanding the Global e-Society – Newcastle, United Kingdom

2000 Towards a Global e-Society – Sophia-Antipolis, France

1999 New Satellite and Terrestrial Applications – Sophia-Antipolis, France

1998 Networked Communities – French Senate, Paris, France

1997 Smart Communities Forum – Economic Development in a Global Information Society – Sophia-Antipolis, France / Rome, Italy

1996 Smart Communities Forum - U.S. Tour of cities and regions – New York / Washington / San Francisco / Silicon Valley, USA

1995 The Second Europe / Japan Forum on Communications – Kyoto, Japan

1994 Europe / Japan Forum on Cooperation and Competition in Communications – Paris, France

1993 Europe / United States Meetings on Cooperation and Competition in the Field of Communications – Rome, Italy

1992 Europe / United States Meetings on Cooperation and Competition in Telecommunications – Washington / New York, USA

The Global Forum 2009 took place on Monday, 19th and Tuesday 20th, October, 2009, in the Parliament Palace in Bucharest. It's the first time in its 18-year history that the event took place in an Eastern European country.

The two-days event attracted more than 450 high-profile representatives from the world of politics, the business community, and academia. Influential leaders and prominent speakers from around the world came together to share their visions and concerns and to discuss the most recent developments and the most fundamental questions related to the topic of this year's Global Forum: ICTs & The Future of Internet -- Opportunities for Stimulating & Reshaping the Economy.

The following synthesis report highlights the key issues of each presentation and summarizes the discussions that took place during the sessions. All slides, speaker profiles, and other documentation are available for download on the website of ITEMS International http://www.items-int.eu/. Do not hesitate to contact ITEMS International to get in touch with one of the speakers.

The Global Forum's report is structured according to the actual sequence of presentations during the two conference days. The summaries of the presentations made during the Global Forum 2009 are listed in chronological order corresponding to their succession in the final conference programme, as listed in the beginning of the present document.

1ST DAY

WELCOMING ADDRESS & OPENING SESSION

DAY 1 – MORNING – PLENARY SESSION

SYLVIANE TOPORKOFF, President of the Global Forum & Founder Partner Items International, welcomed the participants and opened the 18th edition of the Global Forum / Shaping the Future Think Tank.

Along with my partners, Sebastien Levy and Herve Rannou, I am pleased to welcome you to the 18th Global Forum. It is our pleasure to be here in Bucharest and we are honoured by the presence of his Excellency President Traian Băsescu, President of the Romanian Republic.

Thank you Mr. President for your patronage and for being here with us. I know you are a big believer in anything that has to do with progress. And if IT is not progress, then what is?

Romania is an amazing country with a tremendous potential. At the same time, it is still facing many challenges. The focus of this year's think tank is "ICT and the Future of the Internet: Opportunities for Stimulating & Reshaping the Economy."

This year's Global Forum will focus on some of the global issues that the IT industry is facing, in areas such as security, regulatory matters, and content. It will cover some hot issues that are globally relevant: broadband Internet of the future, global medias, e-Health, e-Government, green-IT and innovation in the Euro-Mediterranean countries. These issues will be examined in the context of their impact on the recent global financial crisis and how they might impact and affect solutions.

The conclusions generated by the sessions will be shared with the governments and administrations of all the participating countries as well as the European Commission.

TRAIAN BASESCU, President of the Republic of Romania, warmly welcomed the participants of the Global Forum 2009.

It is a great pleasure to participate, at the invitation of the Global Forum organizers, to the most important meeting on Information Society at a global level, which brings together for the first time in Bucharest leaders from local and central administrations, government experts as well as representatives of the private sector and civil society, from over 35 countries worldwide.

I would like to refer today to the international meaning of this event, as well as to the expectations that we, as host country, have from the Global Forum. Romania is one of the countries that provide brand specialists in the IT&C sector. Thousands of Romanians are working in the USA, Canada and Europe as IT specialists. Romania is the leader in Europe in terms of number of certified IT specialists (in terms of density rate of population per 1,000 inhabitants) and we are among the first 6 countries in the world.

Romania has thus become one of world's most important markets for software production. At national level, Romania represents an important center for the Information Society. Companies such as IBM, Microsoft, Ericsson, Intel, HP, are strongly rooted in Romania. For me this is an extremely important sign that Romania is modernizing at a rapid pace, even if it is not yet acknowledged by everyone.

Now I would like to draw your attention on the fact that for his 18th edition, the Global Forum is organized for the first time in an East European country. This represents the acknowledgement of the potential of the development of the Information Society in this region and more particular, in Romania. But there is also another meaning upon which I would like to draw attention: we are all here, 20 years after the fall of the Berlin wall, beyond the borders of the "Iron Curtain".

The reason I am mentioning this fact is because our recent experience, as East Europeans, allows us to think over the importance of a value system that could orient the way in which are used the huge possibilities offered by science and technology with respect to the citizen and his relationship with the authorities. Depending on the orientation, the government can either become more efficient, more transparent and better subordinated to the citizen's decision (idea that we have been trying to put in place since 1989), or the citizen can become completely submissive to the government, which could have the power and the technological means to control every citizen's life in the smallest details.

It is a reality that our every day actions involve an element of the Information Society. We are living in an interconnected world in which the banking systems communicate with each other 24 hours per day, 7 days per week, the national institutions, the companies, the population, they are all in constant communication by means of the Information Society. The evolution of technology should not scare; it should sustain the modernization and the development of the society. On the other hand, it is important to be aware of the fact that technology as a whole cannot be qualified as good or bad. It all depends on how and by whom is used this enormous power. This decision cannot be taken based on technical criteria; it comes from something beyond science and technology. It derives from the value system that set the bases of individual freedom and democracy in western civilization. After decades of silence, in 1989 the peoples of this region chose without hesitation to return to the values of democracy and to the market economy. We appreciate better than those who did not experience communism the political freedom, because we know what it means to be deprived of it, as a country and as individuals. We know, thus, from our own experience, that excessive power in the hands of the state means tyranny, corruption, inefficiency. We also know that in the hands of a totalitarian government, the

progress of science and IT can become an instrument of oppression. Therefore, we don’t want that, in the future, thanks to the progress of Information Society, governmental bureaucrats look discretely in our personal life, medical record, financial status, eating habits or in the way we raise our children.

In a free society, information technology must play an extremely important role in the freedom of speech, guaranteeing public access to information and encouraging competition, in order to stimulate creativity. All this must be done by assuring the protection of personal information and privacy of the citizen, a citizen that can control himself the activities of the governments, a normal thing that should happen in all democratic countries.

In this regard I would like to provide you with some significant examples for Romania: the use of IT&C applications in the financial-banking sector, particularly in the electronic payment system can generate, directly or indirectly, economies that might exceed a few percents (approximately 4) of the national GDP (Gross Domestic Product).

On the other hand, electronic payment systems involve a transparent process, which makes it difficult not to report incomes; this is a means of reducing underground economy. In the case of Romania, electronic payment systems can reduce by 10 to 15 % the underground economy, i.e. the equivalent of several billion euros annually.

Furthermore, IT&C use and implementation in the governance play a major role in decentralization of the public administration in Romania, in the same time making it more modern and more efficient. Making "e-governance" possible is a major objective for a country like Romania: it improves public services, reduces costs and facilitates transparent communication between the citizens and the public / private institutions.

The National Electronic System is an eloquent evidence for the benefits of adopting electronic tools. Over 9554 public institutions were registered in the system at the end of September this year, compared with only 800 at the beginning of the year. Also, the number of auctions in the electronic Public Procurement system (SEAP - www. e-licitatie.ro) has increased from under 2% to over 12%.

Then again, we must admit that this technological progress at a global level can be the source of extremely serious new risks. It is enough to mention that nowadays even terrorism has a technological potential threatening for us all.

In order to protect national sovereignty, public order and to ensure the freedom of their citizens, democratic governments are completely entitled to make use of these technological tools to counter these threats. This does not mean monitoring all the citizens; on the contrary, governments should act only against those citizens that are involved in acts of terrorism, spying and organized crime. Such an attitude does not constitute a violation of individual liberty, but rather, a way to defend it, a fundamental duty of the government towards the citizens who want to live in a free society.

I think that in the center of all the topics debated during this two-day conference the citizen should be the final beneficiary. Whether it is the private or the public sector, the services provided should be of good quality, adapted to the evolution of Information Society, being in the same time a guarantee for the protection of personal data of the citizen.

To conclude with, I would like to highlight the priority of the two themes: 1. Unbureaucratization and reducing of costs with the help of IT&C. 2. The security of personal data when using electronic services.

I wish that the Global Forum in Bucharest contribute to clarifying and finding solutions to critical problems of the modern society, initiate fruitful partnerships that will determine the progress of the Information Society, will stimulate economic growth as well as the implementation of modern services for the citizens of all participating countries.

URBAN FUNERED, Special Advisor, Ministry of Finance, Sweden, presented with great competence and commitment

Swedish EU Presidency 2009 Teaming up for the eUnion!

The theme of the 2009 Global Forum is of great interest to the Swedish Government as it is to the European Union as a whole. As the Lisbon Agenda and the i-2010 programme, the aim of which was to make Europe the leading Information Society in the world by 2010, come to a close, it is legitimate to ask what has been achieved. That will be evaluated in the year ahead. What seems certain is that we have made great progress in some areas while in other areas we could have done even more. However, when discussing the past ten years and, of course, the future of the Information Society, it is important to bear in mind that we are aiming at a moving target.

Ten years ago the Information Society was quite unlike what it is today. Looking at the world today, a child can access more information on the Internet in an hour than the founding fathers of the Swedish administration could in the course of an entire lifetime. Thanks to sites such as FaceBook and other social communities children can get connected to more people around the world than could have been imaginable by anyone ten or fifteen years ago. When we are thinking about the end users this is something that we need to keep this in mind when looking ahead.

When thinking about the end users it is also important to bear in mind the demands that are being placed on them (us), to remember the young people that went to vote - or at least had the right to vote - in the European elections this summer. The first-time voters belong to the first generation that do not know about the world without the Internet. Those of us over the age of 40 can be referred to as Digital Immigrants whereas this younger generation are Digital Natives. This is a real challenge for the European Union and the Swedish Presidency to take on - to think about the post i-2010 agenda. During its presidency Sweden intends to push this agenda. It will do so in the general i-2010 field as well as in the fields of e-Health and e-Government.

With regards the post I-2010 agenda, the Commission has started a Public Consultation on its aims and missions. In 2009 the Swedish presidency commissioned a report on the post I-2010 agenda with a view to highlighting the most important policy questions that the EU will face in the area of ICT and the Information Society between now and 2015. This report entitled A Green Knowledge Society sets out in around 40 pages and 10 chapters the challenges that we are facing.

Another area under discussion at the 2009 Global Forum is E-Health. In July discussions were held in which the Swedish Minister for Social Affairs pointed out the need to relieve e-Health from the purely technical perspective and put it more firmly on the agenda for health reform. In this context the government has also commissioned and received a report entitled e-Health for a healthier Europe that highlights the astonishing rewards that can be reaped from using information and information technology in a better way within our healthcare system.

In the area of e-Government the Swedish government is also doing what it can to push the agenda. A ministerial declaration will be established setting out the government's visions for e-Government up to 2015. Three political priority areas that will be focused on: e-Government can be used as a means of empowering the citizens and businesses of Europe.
e-Government can support the single market, bearing in mind that in November there is only one more month to go before the implementation of the services directive. e-Government can still be used to enable efficiency and effectiveness within our governments.

The Swedish presidency of the European Union will be seized as an opportunity to push the i-2010 agenda and the government is looking forward to what is coming up in this field.

MARK GIGENSTEIN, Ambassador, Embassy of the United States, Romania, brilliantly highlighted the importance of ICT for economies:

Information technology is one of the most powerful agents of change in America, in Romania, and throughout the world. Information technology removes borders and barriers to the free flow of information empowering citizens and drawing them closer together. Iran and the Philippines are two examples of this. In Iran the power of social networking technology served to overcome the efforts of the government to suppress information. In the Philippines the same technology was used to rally assistance to the victims of natural disaster.

Through electronic fund transfers and payment systems it may finally be possible to tackle the serious problem of Romania's grey market. It is particularly fitting that Romania should be the host of the 2009 Global Forum. It perfectly reflects both the power and potential of a robust IT sector. Information technology has been a major driver of Romania's impressive growth over the last two decades and will, in all likelihood, lead the country out of the current economic downturn. Romania's talented, tech-savvy workforce is a leading attraction for IT sector investors.

A few revealing statistics: IT employs more than 50,000 workers in Romania with average salaries well above the national average. The annual business turnover for these companies exceeds 6.5 billion euros. The information technology and communication sector contributes close to 8% of Romania's GDP. Moreover, Romania ranks third in the world for outsourcing services and is recognized as a global leader in technical certifications and development.

Prestigious American companies including Microsoft, IBM, Oracle, HP, Intel and Cisco are present in Romania investing in its future and establishing extensive operations. This, in turn, makes Romania more attractive to foreign investment in other sectors. Success breeds success. These companies spark innovation, encourage entrepreneurship, provide generous support to public education, and inspire the younger generation to strive for success and excellence in the future.

But there is more to be done. IT can eliminate disparities between the haves and the have nots in society, but only if government works proactively with business to map out the strategies and then invest in the infrastructure needed to extend the benefits of technology to everyone. In Romania, there are still many rural communities where Internet and mobile communications access are only just starting to penetrate. The rural sector in Romania holds tremendous potential to contribute to the growth and prosperity of the country. In order to tap this potential a long-term national strategy for promoting IT is essential. Conferences such as the Global Forum are opportunities to focus on how to adapt IT infrastructure to different national needs, how to use IT tools to make us better stewards of the environment, and how to employ IT to make governments more efficient and responsive.

THOMAS ROSCH, Commissioner, Federal Trade Commission (FTC), USA, discussed with his usual eloquence the question of how the U.S. regards the future of the Internet?

There are three perspectives on this question from standpoint of the FTC:

First, should carriers like Verizon, Comcast and Sprint be required to implement net-neutrality which is data and content without discriminating among providers of that data and content, (e.g. Google, Yahoo, Microsoft etc.). If so, what reasonable management resources should those carriers permitted to take. These policy questions are currently being handled by our sister agency the FCC. The chairman of that agency has declared that net neutrality is required subject only to reasonable

management measures to be defined. A prominent congressman in the United States has suggested that fourth generation wireless applications, e.g. the Wimax application from Sprint, are mature enough that they may be subject to the same net neutrality rules.

There are three things to say about these matters: First, it is hoped that in defining what are reasonable management measures the FCC will give the carriers sufficient latitude that they can raise the capital that they need to finance improvements and innovations to their infrastructures. Second, it seems that antitrust laws which we at the FTC and Justice Department jointly enforce should not be regarded as having anything to offer in the net neutrality debates. Third, it is a good thing that it is the FCC and not the FTC that is handling this hot potato. The reason these issues are of such importance is that a healthy carrier infrastructure is of vital importance to a proper functioning of the Internet. The global economy cannot recover - much less prosper - without a proper functioning Internet. This is because the Internet is so important to consumers, and consumers are vital to the economic recovery and prosperity.

A policy issue of secondary but real importance is whether and to what extent the undisclosed tracking of consumer shopping and/or buying can or should be prohibited. This is an issue that is currently being handled by us at the Federal Trade Commission as it is part of our consumer protection mission.

What is tracking consumer behaviour? The FTC has defined it as the tracking of the consumer's online activities over time, including the searches that the consumer has conducted, the webpages visited and the content viewed in order to deliver advertising tailored to the consumer's interests.

This is a major incentive for internet advertising. Specifically, one of the most appealing aspects to an advertiser or its add agency is whether on the Internet as opposed to advertising in a newspaper, on the radio or on television, it is possible to determine from a consumer's computer usage what goods and services the consumer is likely to buy in the future and then to target its advertising in response to that knowledge. The questions presented by this kind of behavioural tracking are threefold: Have any deceptive representations been made about the behavioural tracking? How is the behavioural tracking done? In what circumstances should behavioural tracking be permitted when no deceptive representations are made and the means by which it is done are not surreptitious?

First, with respect to deception, we have long held the belief that disclosures must be clear and conspicuous, i.e. transparent. However, what is clear and conspicuous - especially when the medium is a moving target like the Internet - can be hard to determine. To compound the problem, lawyers in the US have largely fashioned the disclosures, and the legalese in these disclosures is so abundant that it is simply incomprehensible to consumers.

The second question is how the online behavioural tracking is done. A clear distinction is made between online behavioural tracking that is done through the use of websites and cookies and the use of spyware where software is actually loaded onto the consumer's computer. The secret installation of spyware on a consumer's computer is an unfair practice. Not only because it is contrary to most consumer's expectations about the sanctity of their computers but also because spyware may hurt the computer's performance.

But what happens when no representations are made about whether or not the consumer's behaviour will be tracked? Or the surreptitious means like the unauthorised installation of spyware are not used to do the tracking? A bright line should be drawn to distinguish between instances where the tracking involves the collecting of personally identifiable information (PII) like a social security number in the US or a passport or a drivers license number coupled with other personal or financial information on hand and other consumer information on the other.

Apart from the tracking of PII the tracking of consumer shopping habits raises a vexing policy issue. There are some in Washington who say that a majority of consumers see behavioural tracking as an invasion of privacy and this is the case also in Europe. On the other hand we are told that many Americans don't care. In fact we are told that a lot of Americans believe behavioural tracking will facilitate their shopping or purchasing and the use or sale of that kind of information will help finance free content in much the same way that network television advertising helped us finance free network television content. There are some hard legal issues that need to be resolved even if one thinks as a policy matter that undisclosed behavioural tracking should be prohibited.

The FTC has a role to play in defining the rules that need to be adopted for transmitting health information via the Internet. The stimulus package that was recently enacted by Congress designated the Commission as the primary maker of rules in this respect and the transmission of health care information is also a key matter in the current health care debate in the US. On the one hand it is argued that it is critical to implementing an efficient and cost-effective healthcare delivery system. On the other hand, concerns have been expressed that health information via the Internet can compromise consumer interests by invading their privacy. The Commission needs to reconcile these two competing interests.

Although the FCC will play a prominent role in how the Internet will be used in the U.S., the FTC will play in important role too.

GABRIEL SANDU, Ministry of Communications and Information Society, Government of Romania, provided a most interesting insight in Romania's ICT strategy:

A National Broadband Strategy has been adopted which will contribute to the reduction of the development divides between regions, especially between urban and rural areas, ensuring equality of chances among citizens.

By the end of 2010, the number of household connections will reach 40%, and it will reach 80% by 2015. Also, we plan the growth of the broadband minimum speed to 1 Megabit. In order to achieve these targets, MCIS has managed to release 84 million euros from European funds.

The ministry has initiated procedures for the setting-up of the national CERT structure and, with the help of the European partners, we will succeed to align rapidly to the EU standards regarding the information security.

In respect of the prevention and efficient response to the IT security incidents, the CERT is responsible for the protection of the critical communications infrastructure as well as data transmissions and information exchange between partners
.
The ministry has initiated procedures for the setting-up of the national CERT structure and with the help of the European partners we will succeed to align rapidly to the EU standards regarding the information security.

Romania may act as a regional leader in the ITC field, as well as an important centre for dissemination of the new technologies, and your presence here is just the proof.

PIERRE LAFFITTE, President Sophia-Antipolis Foundation; Honorary Senator named by the French President Nicolas Sarkozy Head of Mission in the Framework of the UPM (Union for the Mediterranean), France, outlined some great ideas on the Union for the Mediterranean:

Changing economy, climate change and globalisation are issues that beg the question: what should we do? The only solution is innovation: innovation in social issues, economic issues, political issues.

The French President Nicolas Sarkozy undertook a big initiative when he launched the Union for the Mediterranean - a co-development between north and south. The government realised that this would be a great chance to create possibilities that will give Europe and the Mediterranean people the capacity to put together five hundred million brains, something that is of importance in the knowledge society we are entering. Five hundred million brains and five hundred million markets which means that for every country, every European country -including Romania - to have a real opportunity to enter the globalised world with a common view of co-development.

This spirit of innovation is the only way we are going to pull ourselves out of this crisis. The French government is developing a new network called the European Innovation Network where we could have any country. We will see by the end of this Forum that the Hungarians have developed their own national network in order to get into this new network.

Very soon it is to be hoped that there will be a network of this type that extends to Romania. Romania, like any other country, should develop a spirit of innovation and entrepreneurism in order to develop business angels, any type of new modes of financing that are being developed now at an international level, and we think that there will be an opportunity for any startup from any country out of these 45 countries, if you include some of the countries from the Middle East and also from the Gulf. It is the first step towards a broader idea which would be EMEA – Europe, the Middle East and Africa.

YORGOS IOANNIDIS, CEO, Romtelecom, Romania, [www.romtelecom.ro], outlined with great clarity and skill the view of a Romanian telecom operator:

It is well known that Information and Communication Technologies (ICT) are key drivers of economic and social welfare. The growth potential of our industry goes far beyond its immediate scope. ICT contributes to about 40 percent of productivity growth and, at the level of the European Union, is responsible for a quarter of economic growth. Additionally the high bandwidth broadband networks are among the biggest and most important contributors for the development of the economy. This is backed up by a study performed by the World Bank that states that "broadband penetration increase of 20 percentage points can have a positive GDP impact of about 3%". If we add to this the impact that ICT can have in the reduction of total global carbon emissions (some foresee a 15% reduction of emissions by 2020 due to ICT) we can understand how important, this industry, is and will be in the future.

As the first Eastern European country hosting this major event, Romania proves once again that it is a strategic player on the international ITC map. Romania's evolution in broadband can be deduced by the results of a recent international study according to which the country is been ranked in the 9th position out of 66 countries with regards the highest quality of broadband communications.

The report also shows Romania has the needed quality level of broadband communications to support next generation Internet applications, which will become common in the next 3-5 years. However, Romania is still lagging behind in the development of broadband in the rural areas. In the same study Romania is ranked 59th from the point of view of Digital Divide between urban and rural areas (broadband penetration today is 43% in large cities, 21% in small cities and only 8% in rural areas). This indicates that all sections of the economy - public and private sector, government and businesses - need to work very hard and in cooperation to close this gap. It is very encouraging that the Ministry of Communications has made some significant steps lately towards accessing European funding for the development of broadband in rural areas. Romtelecom intends to have a role to play in this regard.

Romtelecom is already making a significant contribution to the development of the country. In collaboration with Cosmote Romania, and as part of OTE Group, the company has contributed to the development of the country over the past 10 years by investing in the telecommunications infrastructure over 2 billion euros. This is the largest source of private investment in the infrastructure of Romania.

The OTE Group with all its entities operating in Romania is now the largest player in the Romanian telecom market, in terms of revenues. Starting in 1998 the OTE Group started investing in the former state-owned monopoly Romtelecom. So far, the direct investment of OTE in the share capital of Romtelecom and Cosmote Romania is around 1 billion Euros.

After the liberalisation of the telecom market in 2003, Romtelecom went through significant changes: the company started a huge process of redefining itself from the roots, involving restructurings, infrastructure investments. The company is now making good progress on the long road to becoming an efficient and financially solid company.

In 2007 the company embarked on another ambitious phase of its transformation process. The strategic plans of Romtelecom involved improving and optimizing internal processes, providing competitive service offerings with a view to growing the customers' base and increasing the presence of the company in growing market segments (broadband and TV). In parallel with these a very rigorous cost control effort started.

The most difficult part of the transformation was finalized in 2008, allowing Romtelecom to be better prepared and confront the challenges of the current economic crisis from a more advantageous position.

Romtelecom is now a complete and integrated telecom provider, offering telephony, broadband Internet, data, TV services and System Integration services to millions of customers. Our target is to become residential customers' preferred in-house entertainment partner and the preferred ICT solution provider for business customers.

Anticipating that during this worldwide crisis, we all - governments, businesses and societies - sit in the same boat and need to effectively work together, the company is open to cooperating with the Romanian State in order to develop joint investment programmes to make broadband a "universally available service". The company is also willing to contribute with ideas and suggestions to process of stimulating demand. With common objectives and through the synchronising of plans it will be possible to bridge Romania's digital divide and bring broadband Internet to the most remote areas of the country and make Romania one of the most advanced countries in broadband and contribute this way in a faster exit from the current crisis and to the country's economic development.

GERARD M. MOONEY, General Manager Global Government and Education, IBM, USA, [www.ibm.com], shared some very interesting thoughts with the audience:

Great steps have been taken to improve the global economy over the past year. However, the world is digging itself out of a very deep hole. The hope of securing the progress that has been made over the past year needs to balanced against the fear of slipping back into the recession. Looking around the world, the US is on track to expand and annualise 3% sequential pace in the second half of 2009. The country is benefiting from the tailwind of the fiscal stimulus and business activity is strong and improving. Retail sales are improving a bit and housing has bottomed out. Our big issue continues to be the labour market. In Latin America, Brazil remains on a track to retail sales of 5.8% in August and consumer confidence is up. In Columbia, the currency is appreciating reflecting improved commodity prices. In the Eurozone some improvements in industrial output rose 0.9% in August and 15.4% over a year ago with most countries participating. In the UK a slow rise in employment in the three months to August compared to the three months in July but there is a burgeoning public spending gap. In Turkey, the jobless rate improved to 12.8% down from 16.1% in the first quarter but the budget deficits continue to grow. However, in China in September money and credit growth continued to improve, and in September exports rose 8% month to month, a sign that the global economy is improving. In India industrial output rose 10.4% year to year in August which is the fastest pace in 24 months. Manufacturing and capital good output continued to improve.

Across the world there are mixed results but the imperative has to be on moving forward. The world cannot afford to stagnate. IBM understands that governments continue to take on a very expanded role as the world moves through this recession. On one hand, governments must continue to provide the basic services that they have always provided. Social services, public safety, revenue collection, customs, ports and borders, national defence and postal services. Those are very important functions that governments must continue to pursue.

On the other side the company sees the Economic Stimulus Programmes where governments around the world are working with the private sector to get the various sectors of the economy back on track. One of the things the company has been looking at very hard over the past year is the role of cities. If cities are viewed as the economic engines of most countries we can really start to think about how we start to focus on that economic engine as the spark to reigniting governments around the world. So we look at things like smarter government, smarter public safety, smarter water, smarter traffic, cities, education, health-care, energy and, of course, all the programmes that are being put in place with the Economic Stimulus.

When one thinks about ICT one has to think about the things that are at the forefront of igniting a country and moving it forward. We see ITC as playing a critical role in how all of these things will help transform economies around the world. It is an exciting time, and if we are looking for places in which to invest our ITC dollars it is in each one of these very crucial functions. This is because they not only provide better services to citizens but, more importantly, they make the economy more competitive. That is the thing that needs to be driven in this time of downturn when the investments are made in the future. IBM is very excited about the programmes and the engagements that it is engaged in with governments around the world in each and everyone of these areas.

New Broadband and Dynamic Infrastructures for the Internet of the Future

As **chairperson** of the session, **JACQUELYNN RUFF**, **Vice President, International Public Policy & Regulatory Affairs, Verizon**, USA, [www.verizon.com] welcomed the panellists and set the stage for the panel by brilliantly summarizing the status of broadband deployment in the US, describing Verizon's FTTH progress and plans to launch 4G wireless, highlighting the societal value of broadband, and commenting on the role of international comparisons in informing policy:

New Broadband and Dynamic Infrastructures for the Internet of the Future

In the U.S. broadband deployment is very strong and it is growing even stronger. That has been driven primarily by massive private sector investments, although there are some government investment more recently.

The U.S. is now launching “future proofed technologies”, whether it is fibre or 4G wireless. What is really significant is the increasing recognition of the ability of broadband to address societal problems. All of this has been enabled and fostered by pro-investment public policy.

Broadband is available to at least 94% of U.S. households. In 6% it is not available, except possibly from satellite which is more costly than other sources. 63% of the households subscribe to broadband. There is a very strong competition in the U.S. between and over 80% of population has multiple broadband platform and provider choices. 50% of subscribers receive 3+ Mbps, 32% receive 6+ Mbps actual speed.

There has been an enormous amount of private investment that has driven U.S. broadband deployment. The total private capital invested between 2003-2008 in broadband is $367 billion. The scale and scope of broadband construction is greater than the government’s investment to extend the interstate highway system in the 1950’s and the 1960’s Apollo Space Programme.

Verizon is investing $23 billion to deploy the Fiber-to-the-Home network FiOS by 2010. This most advanced fiber-optic network delivers converged communications, information and entertainment services. FiOS services are already available to 13.2 million homes and businesses. FiOS offers speeds up to 50 Mbps downlink.

On the wireless side, there is already a nationwide 3G coverage which provides speeds comparable to DSL. Verizon is now moving towards 4G wireless using a technology called Long Term Evolution (LTE). The technology is currently tested with China Mobile and Vodafone. It has been operationally tested in two markets with the expectation as of next year it will be commercially available in 20 or 30 markets. LTE offers very high speeds and the question of mobile as a substitute of wireline raises.

Such huge investments have been possible due to the very positive and pro-growth public policy in the U.S. Having this type of broadband enables a profound societal impact : Broadband use can reduce carbon emissions by 22% by 2020. Telework, smart grids and smart highway/transportation systems can reduce the total U.S. oil consumption by up to 21%. In the healthcare sector, electronic health care records and remote monitoring tools using broadband will reduce both costs and medical errors. Moreover, broadband fosters effective communication, expands employment opportunities, and enables educational and social interactions via remote interpreting applications, and telemedicine.

GIORGIO PRISTER, President of Major Cities of Europe, Italy, and **moderator** of this session, opened the **Q&A** part of the presentation by addressing the issue of speed: In some countries people talk about 3 Mbps or 7 Mbps and in other countries about 100 Mbps. What is the real point behind that?

In her answer Jacquelynn Ruff stressed that the first priority is to get broadband available at a good speed to as many people as possible. In the U.S. this is currently about 3 Mbps on average. The question is what further potential can you get at even better speeds. If you can get up to 100 Mbps it is possible to offer more interactive services and such. But as a policy, the FCC recently made some estimate as to what it would cost to have ubiquitous 100 Mbps: It would be $350 billion whereas getting to ubiquitous fibre would be another $30 billion.

JOAO SCHWARZ DA SILVA, Director, Converged Networks & Services, DG INFSO & Media, European Commission, outlined with great clarity what the Internet of tomorrow will be:

Future Internet – Europe in Action

In 1771, there was the industrial revolution; in 1829, the age of steam, coal, iron and railways begun; 1875 was the beginning of the age of steal; in 1908, the age of the automobile, oil, and petrochemicals and in 1971, the age of telecommunications and IT begun. Today we are in the age of networking and smart infrastructures. The successive technology revolutions were essentially unleashed by widening demand and stretching the reach of the infrastructures. Each revolution transforms the economy and shapes innovation for at least the next 50 years. Moreover, each revolution reshapes the opportunity space and the ways of working and living.

We are today at the beginning of a new Era. Mature industries are close to technology exhaustion and their innovation drive is weak. Old economies stagnate, new technologies are still incipient. This is particularly the case for sensors, which are extremely important for the Internet of the Future. There is a need to select the new engines of growth. We need to move from laissez faire towards a more active involvement of the state. We also need to move away from supply-push towards demand-pull in investment and innovation. And it will be necessary to move from individual focus to collective interests.

What are the drivers? Raising energy costs, transport, healthcare inefficiencies, growing environmental concerns but also huge opportunities. We are in the midst of a profound social and economic business transformation. We are all connected: technically, socially and economically. The world is becoming smarter: sensors are being build into many of the infrastructure around us. We are able to turn data into intelligence and Hybrid Intelligence (Artificial Intelligence plus user feedback) becomes prevalent.

At the same time, we are confronted to huge problems: E.g., traffic jams cost Europe €135 billions annually. 80% of the population lives in urban areas. They are responsible for 70% of CO2 emissions. 40-70% of the electrical energy is lost due inefficient grids.

Wireless and broadband Internet are the enablers of a smarter world. From a public perspective, and in domains such as health services, urban transportation, or energy distribution, characterised by infrastructures which are not Internet enabled, significant efficiency and sustainability gains are within reach provided that these infrastructures can be made "smart". To make this happen requires however a deep integration of crucial Internet ingredients such as wireless sensors, computing server parks, reliable software tools in an infrastructure capable of offering the networking and service capabilities responding to the real time business processes of these sectors.

The European Union recently launched the concept of cross-sector public-private partnerships. Its key objective is to mobilise industrial forces to quickly reap the benefits of research through innovation bridging the gap with targeted applications. The Future Internet will accelerate a new industrial revolution where Internet operators, service developers and equipment manufacturers will be called upon to work in partnership with non-ICT stakeholders. An essential characteristic of such a PPP should be to develop open, standardised, cross-sector service platforms.

Such PPPs are considered as huge engines of growth. They are supposed to increase the effectiveness of business processes and the operation of infrastructures and applications of high societal value and especially to leverage the Internet infrastructure as an open, secure and trusted platform for building networked applications on the basis of user-centred open innovation schemes- and thus to maximise the societal benefit and to ensure a greater take-up of broadband.

The European Commission will allocate €300 million under the upcoming ICT work programme covering the period 2011-2013, with a first call for proposals to be issued in 2010. The Commission expects the industry to define a focused PPP content by mid-2010 to meet the dual objective of advancing Europe's industrial know-how in Future Internet technologies and systems, and supporting the emergence of Future Internet-enhanced applications of public relevance. The Commission calls on the Member States, to support the Future Internet PPP and to help refine policy/usage requirements.

During the **Q&A** of the presentation, the question raised, what is the EC's plan to deploy this initiative – apart from investing a significant amount of money - so that it generates a real effect? Joao Schwarz da Silva answered that this initiative must be seen as the beginning of a process – not as a target. Corresponding to an EC estimation the deployment of FTTH all over Europe would cost at least €250 billion. The EC want to ensure that stakeholders from different sectors start talking to each other.

MARIO AGATI, Vice President Multimedia & System Integration, South East Europe, Ericsson, Italy, [www.ericsson.com], provided an inspiring presentation on

Infrastructure 2.0 – The Infrastructure Game

Which are the capabilities infrastructure should have in the future to enable new business models? There is the risk that infrastructure providers and telecom operators still define their business by what they are traditionally selling: telephony services or communications services. However, there is much more business related to what can be called “information logistics”. There are much more data and transaction possibilities that can be object of new business models. Infrastructure providers and telecom operators should not underestimate the power of such information logistics embedded in their networks.

Of course, the industry is following the trends going along with the maturity of the industry: It started in the early 70s with the Internet paradigm providing connectivity between people and giving them the possibility to communicate with each other. The web revolution has added on top of this connectivity a lot of services and capabilities, that the end user is using during his / her daily life for entertainment purposes, for communications services etc. Nowadays, thanks to cost reductions and globalisation of these services, we are more and more assisting to the trend of transforming a traditional "product sales" into a "service sales" virtualizing IT capabilities (from simple computing to the whole CRM process). The big IT companies have understood since a long time the value of "virtualization". Why telecommunication companies should not do the same?

There is a future for telecommunication operators that is going beyond of being a simple bit-pipe provider. Unbundling of services and distribution will create an infrastructure market for distributing, transformation and storing of information. The deployment of hosted Internet service delivery platforms and brokering services will emerge and take the complexity out of service delivery or doing business on the Internet.

The IT industry has already been showing the way and there are a lot of services that they are offering toady as cloud computing. There is the opportunity for telecommunications operators to do something similar if they just explore their internal capabilities in the networks. Inside the telecom operator networks, there are information about the identity of their customers that can be used in different contexts for different applications; there are also information about the location and positioning of the customers that can be used in various applications. There are also information about the status of presence of the customers – are they connected or not? Information about the possibilities to make payment transactions a very important capability inside the networks. There are a lot of valuable capabilities embedded in the telecom networks.

To really use these capabilities in the context of different value chains there is a need for brokering models. There is the need to have some sort of layer in the middle between the telecom networks and the companies that want to use these capabilities. This is where Ericsson wants to engage.

The following **Q&A** of the presentation addressed the question of how Ericsson is equipping itself to achieve these kind of results. Mario Agati explained that Ericsson is moving into two directions: First of all, the company is offering to telecom operators the possibilities to expose these capabilities. E.g. Ericsson uses its service delivery platforms or IP TV solutions to export the capabilities to other value chains. Second, the company tries to become an active broker for these capabilities that enable new business models.

MARGARETE DONOVANG-KUHLISCH, European Government Industry Technical Leader, IBM, Germany, [www.ibm.com], delivered a most captivating intervention by presenting

New Broadband and Dynamic Infrastructures for the Internet of the Future

Broadband should be neutral, whereas dynamic infrastructures are very policy aware and policy driven. The dynamic infrastructure exploitation which we need for a safe future is facing a lot of problems. Overcoming these problems can only be done by a fine-grained multi-tier containment of the different entities. For instance, intelligent transportation systems need to recover from car accidents including major pile up. Intelligent utility networks have to prevent or recover quickly from blackouts or brownouts. Advanced water management shall prevent and recover from water contamination. Industrial process management has to ensure a robust manufacturing processes. Intelligent oil fields have to prevent disruption of oil and gas exploration and production. The common core of all these challenges is the need for sensors, to be situation aware and to be able to solve the problems.

What is meant when talking about a smarter planet? It is being instrumented, interconnected and intelligent and at the same time it is about people, companies, institutions, industries, man-made systems like cities, and natural systems like the water. The Smart Planet is enabled by a digital ecosystem platform, which describes an enterprise architecture for a value network - from top to bottom via the regulatory environment, the policy layer, through interoperability which can be achieved on the technical, on the semantic and the organisational level and which is being standardized by a variety of standardisation bodies, and finally the technology layer where all the different pieces of ICT come together to serve the purpose of such complex but tractable endeavour.

The most important part to serve this ecosystem is to provide data for smart decision making. The ability to pull value from massive amounts of data and respond to real-time information is becoming a crucial competitive differentiator in all markets. The decision loop starts with defining the problem, gathering and analysing the data, in order to decide on how to act. All the different structured and unstructured information residing in the different sources need to be gathered, geo-referenced, augmented and analysed in order to be able to answer questions like “what will happen if I take a certain action?”, “what will happen next?” etc.

We also see in different disciplines the emergence of information and process models. However, the maturity of business process automation varies widely depending on the industry, the complexity of tasks and the processes. Very mature and already standardised processes are supply chain analytics, financial dashboards or healthcare management. As we are moving forward in the digitalisation of the society, new and not yet standardised processes concern workforce management, intelligent transportation systems or resource management systems.

How can this be supported by infrastructure? Compelling differentiation and accelerated system improvement in the Internet of the Future can only be achieved through a multilevel Hybrid System architecture that integrates complementary scalable subsystems optimised throughout the stack. The Internet of the Future will have to enable new service quality in all areas of public and personal life and needs to bridge all service provider and service consumer perspectives. Dynamic IT infrastructures based on converged networks are the foundation for such service excellence.

Security is the most important issue of such a value network. Supervisory Control And Data Acquisition (SCADA) has been widely used in various critical infrastructures, providing the first

example of multi-tiered containment. The Internet of the Future has to be secured like such a business critical infrastructure.

Stimulus investments for an agile digital society and economy in the twenty-first century must leverage the elements of modern infrastructure. Converging the digital, physical, natural and human infrastructures will help to achieve smart information discovery and decision making in any industry. The integrated network and virtualised computing power infrastructure is the essential foundation of any such ecosystem and will become the Internet of the Future.

During the **Q&A** Margarete Donovang-Kuhlisch was asked to explain the difference between cloud computing and dynamic infrastructure. She explained that one can imagine dynamic infrastructures to be deployed in a private cloud so that both would converge.

ALIN-VALDIMIR STANESCU, Government Affairs Europe, Qualcomm, Belgium, [www.qualcomm.com], provided an excellent presentation about the mobile broadband market status and views on how to enable sustainable innovation, investments and competition in mobile broadband market:

Maximizing the Wireless Opportunity to Close the Digital Gap

Today, 3G is everywhere. More than 1.5 billion people have access to over 535 3G networks and there are more than 750 million 3G subscribers. 3G offers mobile broadband today. Of course, everyone is looking towards LTE and future technologies, but at the moment there are 3G, 3G+, HSPA and HSPA+ technologies. In the future there will be LTE networks – there are certain tests carried out now, but so far there is 3G+ which already works in certain countries and regions and delivers very high data rates.

The mobile phone and the Internet 2.0 will be in the middle of our lives. It will provide ubiquitous connectivity, it provides Personal Area Networks for health services or monitoring and it provides Cellular Wide Area Networks which basically enhance the capabilities of data transmission, new services and new applications.

However, in order to achieve this and to close the digital divide, there is a need for two prerequisites: The first one would be regulation – especially regulation to stimulate innovation. The second one is the need for radio spectrum. In terms of regulation and the regulatory environment, there is a need to promote in particular small companies in order to enable them to compete, to put pressure on incumbents and to unleash innovation. Second, there is a need some incentives for this companies to monazite their investments. This can happen via sound IP regimes and standards, but it would be hindered if these IP regimes are restricted. Finally, there is a need access to risk capital and policies that encourage the access to risk capital. Government founding is a very good step, but private funding is also very important, especially given the current economic downturn. E.g., Qualcomm reinvests 20% of the company's annual turnover in R&D and innovation.

What can regulators do? Regulators should abstain from imposing industrial policies or certain standards, just because there are theoretical models supposing that they can stimulate innovation. Imposing certain standards and technologies would limit the evolution path of technology and investment in R&D - and finally, the consumer would be left with less choice.

Another important aspect is radio spectrum policy. For the mobile industry access to radio spectrum is crucial. Of course, radio spectrum requires that government and industry cooperate and work out the rules for the use of this very valuable resource. Do we need a global harmonization or a global

solution? The answer might be “no”, because one has to take into account local and regional characteristics and the need for adaptation. However, the UN framework and the ITU provides certain elements for a better regional harmonization. Harmonized band plans in general support the development of lower cost and smaller terminals - which would benefit the consumer at the end. It would also enable higher coverage, which impacts the energy use, the battery time for terminals and infrastructure, and finally ensures an interference free environment – which is important in the context of the emergence of new services, such as TV and so on.

In Europe, we are talking about the digital dividend. It is the 800 MHz band which will enable mobile Internet and mobile TV. And also the refarming of the 900 MHz band which is crucial for the upgrade of the 3G networks to 3G+ and thus for better capabilities.

Why does connectivity matters? An increase of connectivity of 1% would lead to an increase of about 10.5% of the average per capita income.

During the following **Q&A** the question came up whether spectrum is the major problem in the provision of mobile access to ubiquitous services. Alin-Valdimir Stanescu stressed that spectrum is not the problem itself. The main challenge is to have a harmonized view on spectrum and to allow economies of scale. Therefore it is important, at least in the EU, to adopt a harmonized approach.

CĂTĂLIN MARINESCU, President of ANCOM, National Authority for Management and Regulation in Communications of Romania, Romania, provided an excellent and rich overview on

The Romanian Electronic Communications Market
in the Context of the Economic Downturn

Romania is undergoing a very difficult economic period. Most of the economic sectors have switched on emergency mode, trying different solutions for turning minus into zero. In this bleak picture, more than ever, businesses are turning to ICTs for help against the economic crisis. Overall, Romanian telecom is navigating well through the economic circumstances, as the results for the first semester of 2009 indicate stagnation rather than decrease.

The traffic for fixed and mobile telephony has increased significantly. The customer base remains the same and the number of the broadband connections increased in the first semester of 2009. However, estimations from individual providers indicate some decreasing revenues.

The number of fixed telephone lines is increasing, while the voice traffic is decreasing. The penetration rate of fixed lines increased (24.7% per 100 inhabitants and 54.6% per 100 households). The cumulated customer base of fixed and mobile telephony remains at the same level of 2008. But voice traffic for mobile telephony has increased significantly up to a level of 19.5 billion minutes, which corresponds to an increase of +34% compared to the same period of 2008.

Even though the growth rates of broadband Internet access slowed down, the number of Internet connections increased steadily. XDSL connections, for example, increased by 43% in one year. And mobile access increased by 58% in the first six months of 2009 due to the extension of 3G coverage and the competitive offers available on the market.

Two factors influence the evolution of the Romanian telecommunication market in the first semester of the crisis: The first one is increasing competition stimulated by regulatory measures. The second is the economic crisis. These two factors acted in the best interest of the end user. The same number of customers uses 30% more the services while paying even less money than before. Under the impact of the economic crisis, higher competition and the regulatory measures, the operators have adapted

their offers to this new situation: dropping the tariffs, increasing the number of minutes, and including off-net offers, which was stimulated by lower termination charges. At the same time, the users reassess their communication budgets and are asking for renegotiating the contract - in this respect portability and the high competition are very strong arguments.

ANCOM has prepared a series of measures targeting two aspects: First, the stimulation of operators, giving incentives to the operators to continuing to invest in new technologies and expanding the coverage. Second, to foster the competition. This year, ANCOM has established a monitoring tariff which is significantly lower than what the regulator has perceived before – meaning that the operators are paying much less than before.

The **Q&A** addressed the question of the digital divide in Romania. In his answer, Cătălin Marinescu stressed that there is the urban Romania and the rural Romania. To foster the access in the rural areas, which at the first sight might be not very interesting for the operators, stimulation of competition is a major driver. The Ministry of Communication has some programmes to cover and to roll out access in rural areas. But the stimulation of competition and lowering market entry barriers are the most appropriate measures.

YU XIAO HUI, Deputy Chief Engineer, China Academy of Telecommunications Research (CATR), Ministry of Information Industry, China, provided an excellent and captivating overview on China's broadband and Internet development situation and analysis of the challenges and opportunities it faces:

Broadband in China: Status and Challenges

During the last 3 years, Internet and mobile are the fastest growing services in China. By June 2009, fixed and mobile users reached 1.03 billion, Internet users reached 338 million. In 2008, the penetration rate of fixed telephones reached 25.8%, mobile penetration reached 48.5%, Internet penetration increased to 22.4% and cable TV penetration increased to 12.3%. China has a total population of 1.328 billion people, 54.3% of the population lives in rural areas.

The take off of broadband started in 2002. Users increased up to 83.43 million by 2008. In August 2009, broadband users reached 97.23 million. XDSL is still the main access to broadband (81.8% in August 2009).

Broadband has been driving the development of Internet significantly: Internet services have been developing extremely fast during the past 10 years – with growth rates up to 64.1% annually. By June 2009, Internet users reached 338 million. There are more than 14.000 commercial Internet service and content providers in China; the number of websites exceeds 3 million.

Broadband has become a driving force in the transformation process of China’s economy and society. 100% of the different branches of the central government, 100% of the province government, 98.5% of the cities, and more than 95% of the county have portal websites, which increased the service ability of the government. In 2008, e-commerce sales reached RMB 3.1 trillion, which corresponds to 9.7% of the total retail turnover. The number of users of Alibaba, the biggest B2B platform, reached 30 million.

However, broadband in China is still at a rather low level: there are big gaps compared to the developed areas in China. The penetration rate of broadband in China amounted to 6.3% in 2008, which is 15% lower than the OECD average. The average speed of broadband is less than 1Mbps (about 10% of the OECD average); the deployment of FTTB or FTTH is still in an initial stage.

Bridging the digital divide is still a tough work in China. There are more than 34.000 local countries and over 600.000 administrative villages. So far, 99.7% of administrative villages have access to telephone, 90.9% with Internet. 95.6% of the local countries have access to broadband. FTTH and rural broad deployment will be long-term challenges. There is a lack of business driving force. Compared to the ARPU of broadband, the cost of FTTH/FTTB is still high. There is a lack of funding in rural areas; the lacking of PCs is another problem for broadband development.

The Chinese Government is taking measures to develop broadband in China and in the past few years, several national strategies and plans had been launched to push broadband forward: In 2006, the National Informationization Development Strategy (2006–2020) has been launched. Also in 2006, the outline of the 11th five year plan of economical and social development has been published. In 2007, the 11th five year plan of information industry was published and in 2009, the adjustment and stimulus plan of the ICT industry. Also in 2009, Beijing enacted the first promotion plan of the communication infrastructure, targeted to 20 Mbps for family Internet access, and 10 Gbps for business access in 2012, with a investment plan of RMB 100 billion.

Mobile broadband, mobile Internet and the deployment of 3G represent an new opportunity. The number of mobile users exceeds 700 million, mobile Internet users exceed 150 million, similar to the overall Internet development 2 years ago.

The following **Q&A** addressed the question whether the Government considers mobile Internet also as an opportunity for China's rural areas. Yu Xiao Hui stressed that mobile Internet is much more important for rural areas than for urban areas. The rural population might not have a computer, but their do have mobile phones. Moreover, they might not be able to use a computer, but they know how to use a mobile phone.

MARIA KENDRO, Executive Director, Communications Cooperative International (CCI), USA, delivered a captivating presentation on

Bottom Up, Community-based Solutions for Reducing the Digital Divide

CCI is a USAID-funded, not-for-profit organisation dedicated to expanding access to ICTs in rural and underserved areas through private sector service delivery, especially through enterprises that are locally owned and managed, based on sustainable business models, and that can operate in context of policy environment that is – or can become – reasonably favourable.

CCI is technology neutral and promotes policy, regulatory changes and sector reform needed to enable private sector participation. The organisation guides communities in designing, planning, financing, operating sustainable ICT businesses, as well as in developing and implementing desired applications using appropriate technologies.

Wireless and mobiles are most important for the developing world. The mobile portion of our technology sector is what has really driven the ability of people around the world to access at some level ICT. When poor or rural people have access to technology, they use it an innovatively and creatively in a way that is very appropriate to them.

Mobile banking, for instance, is a very unique application that was developed by poor people in rural areas with no banking access, enabling funds transfers and remote transactions. Health applications were created that enable rural healthcare providers to connect to persons with diagnostic capabilities or simply call patients and remind them to take their medicines.

Many people believe mobile technology is poised to offer full Internet access in the coming years, but access barriers are alive and well and will continue to be. Even mobile technology presents three barriers to access: coverage, cost of handset, and cost of service. Growth of ICTs is heavily concentrated in urban areas that are easier to serve while providing greater ROI. There are digital divides in two key areas: the digital divide between the developed and the developing countries and within the richer and poorer within developing countries themselves. The challenge continues to be how to deploy necessary infrastructure to enable access in relatively poor, rural isolated areas, in an economic fashion. Alternative approaches are needed.

One powerful alternative that needs to be seriously explored is community-based solutions. There are to forms to be considered: The first would be enterprises that are owned and controlled by persons, business or other entities that produce or use enterprise's products or services (cooperative model). The second is locally-owned and managed enterprises backed by investors committed to the community and its development (local investor business model). One could also imagine hybrids of these. The chosen approach dependent on prevailing culture and laws and needs of the area to be served.

In the cooperative business model users own, control, and benefit from the product or service. Anyone can join, members buy shares and are owners, and members have equal votes. The focus is on delivering services that are needed and that are not otherwise being provided versus generating a profit for an investor – as there is no investor. Surplus is reinvested in growth and eventually returned to members.

There are about fifty hindered cooperative and community based telecommunications systems in the U.S. today. They are traditional phone companies that today have extended into Internet and cable

services. These companies serve only about 6% of the access lines in the U.S. but they cover 40% of the land mass.

Basic requirements are: The activity has to be permitted by law, there has to be local commitment and investment, there has to be fee-based service delivery, funding for technical assistance (donors), funding for start-up costs and private sector participation.

The community-based solutions work well. New technologies increase their relevance. E.g., wireless presents a comparatively low initial investment, scalability, a relatively simple technical deployment, low-cost, open standards, and the adaptability to voice and data requirements.

During the following **Q&A** the question came up whether is there some documented business models that can ease the decision to invest in these underserved areas. Maria Kendro highlighted that there is no hard and fast answer. There are business models for instance from satellite companies that would lead you to conclude that it is a really excellent business model for them given certain basic parameters. But when you are working in these environments, the local environment is so important and the way the people work in this environment is critical to the business model one can generate. It really has to be tailored in a very fundamental way.

BRENT OLSON, Assistant Vice President - Public Policy, AT&T, USA, [www.att.com], presented with great clarity, insight and inspiration

Broadband Opportunities and Challenges in the United States

The U.S. made tremendous investments in broadband and in less than a decade, U.S. broadband deployment and adoption have exploded: In 1999 there were fewer than 3 million broadband connections. In 2007, there were 121 million broadband connections and related IT has driven 1/3 or more of the productivity growth of this decade. In 2000, the U.S. had 6% and in 2009 63% broadband adoption. U.S. network providers invested more than $60 billion in communications networks in 2008; AT&T alone invested more than any other publicly traded company.

Over the past two years, AT&T has invested some $38 billion to enhance its wireless and wired networks and supporting infrastructure. The company plans to invest $17-$18 billion in 2009, with approximately two-thirds of this investment devoted to expanding its advanced wireless and wired broadband networks. 3G is a huge focus of the company.

However, significant broadband challenges remain and despite a decade of progress, not all Americans have access to terrestrial broadband service. Broadband is available to approximately 90% of U.S. households. 74% of all U.S. households own a home computer. About 30% of households have access to some type of terrestrial broadband service, but do not choose to subscribe. A large gap was noted among certain groups; although, these same groups also saw the greatest growth in adoption rates over the past year: Senior citizens, people with high school education, low income populations, minority and rural population. Surveys show that about 1/3 of adults without broadband cite price and availability as the reasons why they don't have broadband in their homes, while 2/3 cite reasons such as usability and relevance.

There are two areas were the U.S. is diving into the policy of broadband issues: One is more of a short term far reaching economic stimulus programme, which is the American Recovery and Reinvestment Act (ARRA), the other one is the FCC National Broadband Plan, a longer-term, comprehensive national broadband strategy. ARRA provides $7.2 billion for programmes directly aimed at stimulating broadband deployment. The FCC National Broadband Plan supports the ARRA goal of ubiquitous

broadband to include analytical and strategic aspects as well as an evaluation of the deployment status and progress of supported grant projects and a plan for the use of broadband infrastructure and services in advancing public welfare.

The stimulus programme ARRA is being overseen by the U.S. Commerce Department. The Commerce Department is in the process of implementing this programme. They have written some rules so far, but they have not allocated any money yet. With regard to ARRA, AT&T recommends 6 major aspects: Prioritise grants to public and non-profit anchor institutions in both unserved and underserved areas. Focus provider grants on unserved areas. Fund programmes that remove barriers to broadband adoption, particularly for low-income users. States should play an important role in identifying and prioritising which projects should be funded in their States. NTIA and RUS should define “unserved” and “underserved” by reference to the level of broadband subscribership and the needs of anchor institutions. And finally, NTIA and the FCC should establish clear and reasonable definitions for the non-discrimination and network interconnection obligations imposed by the statute.

With regard to the FCC plan, AT&T recommends to establish two quantifiable core national goals that should be achieved by February 2014: Ensure broadband access for 100% of Americans and enable broadband Adoption by 100% of Americans.

Wireless broadband is growing at a truly astounding rate: Over the last 3 years, data traffic over AT&Ts networks has grown by over 4,000%. Many of this growth is concentrated in a small subset of the costumer base and is driven by smart phones. The 2008 FCC Broadband
Report shows the dramatic increase in wireless high speed lines over the last 2 years. Wireless high speed lines accounted for 60% of the new adds in high speed access lines in 2006. Mobile wireless’ share of total broadband lines rose from 1% to 27% of total broadband lines.

The **Q&A** referred to examples of what the Internet of Tomorrow will be. Brent Olson stressed that the Internet of Tomorrow really is going to be the ubiquitous network that we are going to use for multiple things. Increasingly people see the network as part of their life. IT will be the network addressing social issues, it will be the Internet that provides the platform for taking care of environmental problems, education, or healthcare. That’s were the opportunities are.

--- ✦✦✦ ---

The first comment of the **Q&A** part at the end of the session referred to the presentation of Joao Schwarz da Silva. A participant asked if the EC intends to propose technologies considered as appropriate. Mr da Silva stressed that the EC is technologically neutral and will not mandate any particular technology.

A second question was addressed to Maria Kendro and Cătălin Marinescu who advocated contradictory models to deploy broadband in underserved areas. Mrs Kendro was advocating the local cooperative model with local users investing in the new service and with the private players not willing to go to these areas, while Cătălin Marinescu presented the promotion of competition as the best way to deploy broadband in rural areas. Could one start with a cooperative model at local level, which gradually evolves with increasing coverage so that later on there will be competition?

In her answer Mrs Kendro stressed the need for alternatives. There is not one answer for everything. There is the role for incenting the private sector to go where it can – however, experience has shown that this incentive is generally the ROI. There is a experience in the Universal Service Fund activities where the private sector says that the incumbent operator has to go to these areas, but when they leave and have completed their work, it is not a sustainable system. In situations like that, local investment seems to be the way to go, because the local population has ownership of the system, they create a business that helps community development to take off. For instance, there are no problems like vandalising telecom equipment because its their system and if it is not operating well they know how to fix it. The Government certainly has a role in encouraging the private sector where the private sector belongs and if the private sector is hesitant or do not see an opportunity in areas with less opportunities for ROI than there should be these incentives for a community based model. Today, it is especially relevant because appropriate technology is the name of the game and in many developing countries they do not necessarily need the same services that are being offered in developed countries. Cooperative models allow communities to establish their own systems and when they get to a certain point there is some history to show that in 50 or 60 years something that starts as a cooperative might be poised to turn itself into a commercial enterprise. One has to keep in mind that the cooperative is a commercial enterprise - it just is a not a full profit commercial enterprise.

Mr Marinescu pointed to the fact that in Romania there are some opportunities to promote competition as first option for broadband deployment. The penetration rate of cable is very low, but there are some licences that are using spectrum in the 450 and 410 nm bands that are covering very well even the rural areas. Romania's regulatory authority is trying to give incentives to the private sector to go even there.

The chair of the session then asked Joao Schwarz da Silva and Mario Agati to provide a quick set of comments on the issue of security. Mr da Silva emphasized the need to remove barriers to broadband adoption and one of the barriers is the trust that people have on the fact that broadband will deliver something useful. Trust requires security. There are many applications where the citizens are not at all convinced that the system is not being used for purposes which have not been meant. Citizens have to recover the feeling that broadband is performing a useful services. This is why, in addition to trust, it is important also make sure to provide to the citizens something more than just a conventional service.

Mario Agati confirmed that there is a problem of privacy and data, especially if one is entering the business of information logistics, which means using data that are inside the operators' networks and which concern the end user. However, if you follow correct regulation and strict procedures of opting-in, where end users have to give consent to make available their own data for different types of purposes, this can become a value for the end user at the end. One should move away from the idea of a big brother that is using user data in an unwanted way to something that provides value to the end user.

Margarete Donovang-Kuhlisch was asked to provide some specific examples of a smart planet. Mrs Donovang-Kuhlisch first explained that there are two notions of security which go beyond the classical understanding. The first is the notion of policy compliance: there are all types of policies and regulation strategies on how to conduct business and the infrastructure must assure that these policies are respected. The other aspect of security is the notion of trust in the following 3 dimensions: trust in the identity of the user of the Internet of the Future, trust in the information management in the back office, and – in the case of cloud computing –trust in the broker between the service consumer and the service provider. An example for smarter planets is IBM's "smart city command centre", which enables city officials to have a constant overview over energy supply, water supply, or law enforcement situations and to act preventively. Another example concerns the area of water management: a kind of a "smart dike" able to prepare itself for flood.

The last question referred to the possibility to use mobile wireless to address digital divide issues. Mr Marinescu emphasized that Rumania is a specific case. Internet access is currently 50% fixed and 50% mobile due to the very low penetration rate of fixed lines. Rescue is coming from the mobile side and the use of spectrum. On the European level there are some common views on how the spectrum will be used and one of these is – apart from the current broadcasting spectrum – to use the upper part for other purposes than broadcasting. Mobile Internet can be one of the future uses.

Alin-Valdimir Stanescu stressed that the EU has just took a step forward in refarming the 900 Mhz band. This is a very good step since its penetration is very good and helps bringing broadband to rural areas. All these technologies can be complementary and can be used in addition to fixed and wireline.

DAY 1 – AFTERNOON – PLENARY SESSION

The **chairperson** of this session, **JEAN-PIERRE CHAMOUX, Professor at the University Paris V René Descartes**, France, welcomed the participants and introduced the speakers. Jean-Pierre Chamoux is professor for communications, he was formerly the French telecommunications regulator. He animated the session with his usual efficiency and enthusiasm.

BOAZ DOLEV, Director e-Gov Department, Ministry of Finance, Israel, made a noteworthy presentation on

Israel e-Gov Strategy

The mission of the Ministry is to provide an "Available service desk" open 24 hours a day, 7 days a week, to improve ROI and resource utilization in the Government and to develop new online cross-government services for citizens and businesses.

67% of all citizens are connected to the Internet (95% of those have a broadband connection). 80% to 90% of all children have computers at home. The price of a PC in Israel is between USD 250-600. 95% of all businesses are connected to the Internet. All citizens have cellular phones. e-Gov websites count 3.2 million visitors per month and 250,000 Forms submitted on-line each month. 21% of all government transactions are done online.

In terms of e-Readiness, Israel was ranked 17 out of 183 in 2008 by the UN.

The e-Government services include an e-Gov Portal as gateway to government services, e-Payment services (taxes, tolls, fines, registration…), the possibility to fill and submit forms, dynamic on-line government tenders, the development and testing of secure e-voting, smart card and digital signature, and an XML gateway to enable cross government secure data connection. Most of the services are developed in Israel.

Israel tries to realise the following tasks in terms of e-Government in 2010: to open My.gov services to the public, deploy Smart-ID card for all citizens, develop new cross-governmental applications, develop infrastructure for mobile e-Government, deploy digital signature in all Government forms and to upgrade all government websites with web 2.0 tools and a standard user interface.

In the future, Smart phones will replace computer based applications – governments must prepare themselves for this challenge. Cross government applications represent also a political challenge. Broadband is a critical infrastructure and governments need to deploy fiber optics or 4G networks to enable the implementation of new applications in partnership with the private sector. A strong eID with digital signature is a must for developing more effective e-Government applications. Social networks represent a big challenge on how to create a working G2C model.

ROBERT HENSLER, State Chancellor, State of Geneva, Switzerland, took the audience on a short trip around the world in search of online voters' empowerment and cross border national sovereignty for democratic States.

Most of us here came to Romania for this meeting. We are travellers. If we were British, however, we could be missing an official ballot as Great Britain always votes on Tuesdays. As you see, it doesn't take much to disenfranchise a citizen.

Some of us work or study here, while being foreign nationals. They are expatriates. This condition is set to become a temporary rule in many a life. In our globalised world indeed, expatriation is more and more part of study curricula, professional careers and sentimental lives.

We are already weaving a web of relations spanning over several countries if not several continents. Our communities are no longer geographical; our identity does not anymore depend from the place where we live. In the process, we do not lose our original self; on the contrary. One deepens his outlook on his culture and country of origin by being confronted to other ways of thinking, doing and acting.

Ultimately, we enrich our own country when we return. But why can we not provide this added value from abroad? European Union citizens can vote in Romania and let this country benefit from their insights; but why should our home country benefit only when our feet trample on its soil?

This question is more and more being asked not only by expatriates, but also by governments feeling they have an opportunity in reaching to their expatriates. They understand that by empowering their citizens living abroad, they turn them into ambassadors. The benefit is obvious and bears a catchy name: it is called soft power, according to the concept carved by Professor Joseph Nye of Harvard University.

I experienced it myself with Italy, which introduced six years ago postal voting for its expatriates. Because I can now cast my ballot for Italian elections, I follow much closely its politics and by talking to my relations about Italy, I convey some of this country with me.

As you may know, Geneva has implemented Internet voting in 2003. Only this year however did we offer this channel to our expatriates. For the first eEnabled ballot for expatriates, a third of all ballots were cast online and the rest by postal voting.

A quick summary of online votes shows that three quarters originated in France, where there is a very strong Swiss community. Next come in decreasing order the United States with roughly 5% of all online votes, Spain, Great Britain, Germany, Canada, Italy and Belgium.

If I take the reverse approach and look for the countries where online votes were predominant, Japan is number one with two thirds of all online ballots, followed closely by the United States, Netherlands, Belgium, Portugal, Canada, Australia, Spain, Germany Great Britain, the Czech Republic, Italy, Greece and France.

We took the opportunity of this ballot to conduct a socio-political study. More than half the expatriate voters filled our questionnaire and 75% of them said that Internet voting would bring them closer to their home country.

Yet, cross-border electronic voting entails a least one legal issue, which I was not aware of before we extended our reach beyond our borders. This is a sovereignty issue arising in the cyberspace and I would not be surprised if similar cases would arise in growing numbers in the coming years.

Electronic encryption is a “dual use service”, meaning that it has both a civilian and a military use. It is therefore regulated by an international treaty called the Wassenaar Agreement. As a consequence and since we use military-grade encryption, we can only provide access to our online voting platform to the Swiss living in the European Union or in one of the countries that signed this agreement. This may sound restrictive, but it actually covers some 95% of our expatriates.

I would call horizontal development this extension of Internet voting outside of our borders. What then about vertical development, what about the spreading of online voting all over Switzerland?

Geneva has developed its online voting platform over the last six years. We have invested money and gained knowledge. Today, we are entering a process of hosting on this platform citizens from cantons wishing to offer online voting without investing in their own system. We are currently working with Basel, Bern, Lucerne and Vaud, acting as a service provider to these public entities.

We do not want to stop here. We are providing our services, whether sharing sources, know-how or hosting facilities to any public entity interested in collaborating with us. Do not hesitate to approach me or any member of the Geneva Delegation during this conference and please stop by our booth outside this room to see by yourself what our platform is.

But think of this: when you embark on electronic voting, you have a legacy. This legacy is not your existing IT systems; it is your past electoral records. Were your elections fair and transparent? Were they flawless? If you can answer yes to these questions, you are a likely candidate for internet voting.

Let me reassure you: I am not making a due diligence on future customers, I am simply telling you that it is easier to develop internet voting there where trust in the electoral system has been established, than where this confidence hs to be built or rebuilt.

Politicians in general tend to be cautious towards electronic voting under any guise. To successfully implement it, you have to levy on the citizens, who in my experience are far more supportive. In Geneva, 70% of voters approved in an official ballot the introduction of internet voting; yet there was only a tiny majority to bring this project forward in parliament.

I see reasons to this. One is the MPs tendency to know better what is good for their electors. Another is the parliamentarians’ inclination to censor complex projects that they cannot understand. And, indeed, the safer an electronic voting system is, the more complex it also is. That is why we saw in Switzerland some MPs trying to cope with complexity by using catch phrases such as “open source” or “open standards”, without seeing the big picture. Such keywords bring us very close to an ideological debate, when we should talk pragmatically,

In this framework, the decision on electronic voting made last spring by the German constitutional court is interesting. The court ruled that electronic voting was compatible with the Constitution as long as the general public could understand how it worked. This is a serious challenge, that will be partly but not totally solved by the growing computer literacy of the population,

I truly believe that there is an opportunity to seize for future-oriented countries. The field that we began covering in Switzerland remains largely open. There is no peer pressure as of now for you to embark on internet voting, but this you chance to create the pressure by boarding the train now. Only by multiplying experiences and accounts will we be able to fully solve the German challenge, only a critical mass of countries working on internet voting can reach simple enough solutions to be understood by the majority.

THAIMA SAMMAN, Senior Director/Associate General Counsel, Corporate Affairs/Corporate Social Responsibility, Microsoft EMEA, France, [www.microsoft.com], brilliantly elucidated with her usual charm and insight the topic of

IT Sector's Share in Building Local Economies

The IT sector is a growth potential industry in the today's economic context. The software industry is a provider of productivity tools to support other sector growth. IT is an enabler to better address societal challenges.

Globally, IT spending and employment growth will outpace GDP and overall employment growth by a factor of three from 2009 through 2013. There will be 5.8 million new IT jobs and 75,000 new companies by the end of 2013. In addition to that, there will be more than 16,000 new businesses in the EU between now and the end of 2013.

Software, is the power behind the engine: In 2009, global software spending and employment rose while IT spending and employment dipped. While spending on packaged software in the 52 countries will be only 21% of total IT spending in 2009, 51% of IT employment will be software-related. In the EU, spending on packaged software will be only 20% of total IT spending in 2009 and 58% of the IT employment in the EU will be software-related.

Microsoft deeply impacts the ecosystem of its local partners: 700,000 business partners will generate revenues of USD 537 billion in 2009, Microsoft, almost a third of the USD 1.4 trillion in total global IT spending. For each USD Microsoft makes, the partner ecosystem makes USD 8.70. For each EUR Microsoft makes in the EU, the partner ecosystem in the region makes EUR 9.02.

The new jobs that will be created by the IT industry are promising, but they will require a highly skilled workforce. A skilled workforce will drive software innovation and innovation is the solution to societal challenges.

The technology to realize the vision of tomorrow's healthcare is already available today. Wider access to healthcare for many will lower costs for national systems, provide better quality of delivery, and produce economic growth and new jobs. Patients are empowered in a connected healthcare ecosystem to manage their health and remain more independent at home, while at the same time reducing hospitalisation costs.

e-Health is a critical "change agent" helping our societies to make the shift from cure to prevention, from treatment of diseases to a focus on wellness and care. An ecosystem that empowers physicians and providers by giving them the right data in the right format at the right time, is enabling the best

treatment and preventive care. Reward systems for innovative doctors who make the Internet the foundation of the patient-physician connection can drive the transformation forward.

The IT industry faces an environmental challenge – but there are IT solutions to address it:

To raise awareness, the Climate Savers Computing Initiative unites hardware and software manufacturers who commit to launch power efficient products. Eye on Earth Observatory brings together scientific information with observations of millions of people. Waterwatch includes information on the water quality for 22.000+ bathing sites in Europe.

Consumer options to reduce the environmental impact of ICT are Windows 7 Opt-ins, the reduction of background activities, the use of less power-hungry DVD playbacks, powering off unused ports, a more accurate battery-life indicator and automatic screen dimming.

The Unified Communications provides solutions for organisations to reduce carbon emission by reducing travel needs. i.e. Microsoft employees avoided flying 150 million km in the past fiscal year, saving 17,000 metric tons of CO2.

In terms of R&D investment, Microsoft Research in Cambridge, UK, is working to help manage the world's forests and understand their impact on our climate through predictive computational models. The Data Center in Dublin, Ireland, has been officially recognized as a best practice in using sustainable energy by the European Commission

MARY TOVŠAK PLETERSKI, Principal Adviser to the Director General, DG INFSO & Media, European Commission made a bright presentation on the challenges for policies related to information and communication technologies

Mary Tovsak focuses on the need to invest in the future of Europe's public ICT services and highlights the Commission's perspective in the areas of eGovernment, electronic identities, social and health care, ICT for energy efficiency and investments in broadband connectivity.

The presentation has been developed along the lines of Barroso' agenda for the next Commission and puts DG INFSO activities as a contribution to their realisation

- Coping with the current economic crisis: investing in broadband, enabling people through connectivity, developing ICT services for the internal market (eIdentities and eHealth)
- Coping with the challenge of sustainability (demography and environmental): ICT for ageing (tele-care, and research in ambient assisted living); recently adopted Recommendation on ICT for energy efficiency
- Enabling consumers (Europe of people): modern public administrations through eGovernment, empowerement of citizens

The presentation concluded to call for setting the agenda for sustainable public and health sector for the next Commission and drive forward development.

Smarter Governments: "Empowering Citizens"

The session's **chair**, **GERRY MOONEY, General Manager Global Government and Education, IBM**, USA, [www.ibm.com], welcomed the panelists and participants and opened the session with some excellent reflections about smart governments:

The prerogatives of empowering citizens and smarter government this cannot be limited to one or two items like e-procurement (not that it is unimportant). It needs to be fairly expansive.

Smarter government is about providing access and information to citizens: the more informed citizens are the more empowered they are. It is also about informing government. As government gets more feedback from citizens about the value of the services they are providing, only then can they really start to target where improvements can be made and what they need to do.

When thinking how smarter government can be addressed, there are at least 12 opportunities to be addressed. One of the things that all governments are struggling with now is reducing costs, looking for ways to consolidate and share services. They are also looking at new ways to find revenue because many sources of revenue have dried up or significantly decreased. Smarter governments are starting to ask themselves how they can do their analytics better. How can fraud detection be implemented? How can insights be gained into non-compliance around certain things? how do we do things like congestion charging which might provide more money for transportation?

Certainly governments, because they now subsidise so many different industries are improving and expanding their regulation. Smarter governments need to be transparent and have improved accountability. You want improved information flow and informed policy for both government and citizens. Governments are also looking at collaborating more effectively and more broadly. Collaborating internally, across different agencies within a government; collaborating across governments; across borders. And they certainly want to collaborate more effectively between the public and private sector.

Finally governments are thinking about how they can become more innovative – looking at new business models, public-private partnerships, shared services, looking at how to better provide services to citizens. The topic today will help lay that all out to see how governments are expanding across a wide set of activities to drive increased use of technology, to act in a smarter, more effective way.

DANILO ORESTE BROGGI, Chief Executive Officer, Consip S.p.A., Italy, [www.consip.it], delivered a great presentation on

e-Procurement for Economic Recovery

The current economic turmoil has badly hit world economies and undermined the public's confidence in the world's financial architecture. Millions of jobs have been lost, people have become more and more sceptical about the ability of our economic system to get back on the right track by itself. In tough times, there is only one possible solution to redress our free market economy: that is dramatic and coordinated intervention by central governments.

Most developed world economies have already committed to using trillions of dollars to this end, of which approximately 1 trillion will come from the Obama administration's stimulus plan. A big fraction of such a sizable amount of money will be poured into federal contracts, from civil work to research of green energy and the development of electronic health records.
Many contracts will be awarded by state agency, by using public procurement.

The use of public procurement for economic recovery is a novel story. We are used to thinking of competitive public procurement as an effective tool to keep public spending under control or to achieve value for money. In recent years, scholars and policy-makers alike have pointed at its potential as a growth engine. While most of us would agree with such an innovative view, there is a faster, although less far-reaching, solution to spur our economic system. One possible strategy is to ask – who is suffering the most from the current state of affairs? Workers, small and medium-sized businesses. The credit crunch, generated by the financial crisis, is pushing a growing number of SMEs to the risk of bankruptcy. How many feasible options are there in the near future?

Firstly, agreement has to be sought on what should not be done, broadly speaking there needs to be agreement on whether we should resist the temptation to loosen the fundamental rules of public contracts. There is a widespread consensus on the milestones of transparency, competition, fairness and non-discrimination as the pillars of our public procurement regulatory system. More specifically, we must consider the potential impact on the overall architecture of our public e-procurement system. Discriminatory policies in favour of the most distressed economic operators do look attractive at first sight but any decision must be made coherent with the overall system of rules and such radical action takes a long time.

These are the efforts Consip has deployed in opening up the procurement markets to SMEs: splitting national contracts into lots, tailoring participation requirements that don't constitute barriers to entry for smaller firms and setting up training desks in almost every Italian region. These are the most relevant actions taken so far but coming back to e-procurement, the electronic market managed by Consip represents a very smart solution to help SMEs enter the public e-procurement market.

This electronic tool has already been presented in previous editions of the Global Forum. So you are already aware that its user-friendly procedures facilitate interaction between demand and supply. Since only low value transactions, below the EU threshold, can take place on the platform, the legal framework is already less stringent than the one for contracts above the threshold. The growth rate of the electronic marketplace demonstrates that we are going in the right direction and that e-procurement can be a concrete opportunity for SMEs. In fact today, around 5000 suppliers do business in the marketplace and the emarketplace started at the end of 2004. 97% of them are SMEs and 62% of these SMEs are micro-enterprises with less than 10 employees.

At the same time, public buyers are more and more willing to use this electronic tool. The total volume of transactions made by public buyers has had an 80% average growth over the last three years.

A large burden for SMEs today is the financial cost caused by the late payments made by public administrations. This is a European-wide problem and especially a problem in Italy. Concrete steps have already been taken to dramatically cut delays in public administration payments in some countries, most notably in France and in the UK. South Korea has adopted an even more original approach.
The Korean Public Procurement Service anticipates, if required, the money due from public administrations to suppliers and is able to make electronic payments within four hours after the product or service delivery.

But what about Italy and Consip?
The plan is to select, on a competitive basis, a financial intermediary that can act as the public administration's creditor if the administration itself is unable to fulfil the obligation of paying within the agreed payment terms.
There is a clear advantage to both suppliers and the public administration. The former will have access to factoring services at lower-than-market-rates. This will provide a stronger incentive to compete for public contracts, positively contributing to trust building in the national e-procurement system.
Public agencies will benefit from stronger competition and there will be a more friendly environment for SMEs.

That is the brief outline of our e-procurement system. eProcurement is not only a tool to innovate or make savings, but especially during economic crisis, it is also a very effective instrument in favour of economic recovery.

PETER SONNTAGBAUER, Management Consulting Bundesrechenzentrum GmbH; Public Relation-Director Project "Pan European Public Procurement Online – PEPPOL", Austria, provided a very interesting insight into

Pan European Public Procurement Online - PEPPOL

Pan European Public Procurement Online (Peppol) is a project, which is co-financed by the European Commission and by governments in member states. We have a budget of €30 million and a duration of three and a half years and if you look at the map there is already quite a good coverage in member states. What is the challenge? If you are calling from Austria to Sweden you don't ask what the other side is using – a telephone, as hardware; you don't ask what the protocol is between telecom operators.

In public procurement it is different, for example if an SME in Germany wants to send an electronic invoice to Norway or Sweden that is very difficult because they are different formats, different processes and different laws. This needs to be changed because it is an obstacle to all the companies across Europe. It's a kind of electronic Babylon at this stage. The pan-European exchange of electronic documents - orders, invoices, catalogs – between any private company and any new governmental institution should be as easy as sending an email. This is quite an ambitious vision but it can be achieved and we are on the right track.

Fortunately it is a win-win situation for all key stake-holders in the private and public sector. For government it means reduced costs through more competition on the one hand, because

there are more bidders. It also means more efficiency, if electronic documents are coming in, they can be processed immediately without having to be entered manually. This means more efficient processes, cost savings on the government's side and likewise on the suppliers side if documents are electronically transmitted. For suppliers it also means increased sales through easy access to markets.

One of the objectives of the European commission is that there should be easy access through cross-border transactions in public procurement, easy access to public procurement markets. Another aspect is the IT industry, so the IT industry benefits from e-procurement. This means more jobs and more avenues in the IT industry because there are new projects in governments, there are new projects in the private sector so this stimulates the IT industry. A good example is Denmark: when they started their invoice project they made a law, then within a short time they really pushed enterprises to modernize their IT systems because it was mandatory to submit electronic invoices to the government. They have also created some competitive software companies, so it was really advantageous for the government and the private sector. On a pan-European basis the project can do the same for all European countries, which could have a very large impact on suppliers, governments and the IT industry across Europe.

This is also the role of smart governments. Smart governments are acting as a catalyst for sustainable technological innovation and e-procurement. Governments are the single largest buyer in the European Union, with €1800 billion annually. So the governments should be a locomotive for standardization, for the establishment of infrastructure and they should raise the bar. For example they should make electronic communication and invoicing mandatory. By doing that they can really initiate sustainable technological innovation.

There is also an e-participation aspect, which is also quite important. There are SMEs, a lot of suppliers, the IT industry and civil servants and stake-holders. 30 million companies are acting as suppliers for the public sector, there are millions of civil servants and thousands of IT companies across Europe which have to come on board. This topic of e-participation is serious challenge, to bring them on board and to ensure that they are going in the same direction.

JEREMY MILLARD, Senior Consultant, Danish Technological Institute, Denmark, provided an excellent and comprehensive view on

eGovernment: From Smarter Governments to Empowering Citizens

One way to make the leap between e-procurement and e-participation, is to look at the e-government value chain, linking smart government (the institutions and processes in the back office can be made smarter, with automation, link up databases), between the different levels in the public sector but also, critically important here, in collaboration with the private sector and the civil sector. It's about PCPs as well as PPPs, which is particularly important, not so much for e-procurement but certainly for citizen services, because many, especially local citizen services often involve civil society, NGOs and other citizen groups. Civil society is after all, just citizens organising themselves.

From experience in working all over Europe, the civil sector is very involved, particularly at a local level, in e-participation and in providing government services and inputting to policy making. That can be linked to the front office, the interface between the public sector and the users: citizens, communities, localities and businesses. This is where government becomes

empowering, not just for itself but society, citizens and communities. The interesting thing about IT here is that it's opening up and changing the value chain. It's changing the business model because new actors can come in. The theme is how ICT is making the value chain open and porous. Open so that people can see it and participate but porous because the boundaries between organisations is no longer rigid.

For example, open governments will be porous because we're turning governments inside out, the inside of government in being exposed so people can see what's going on. Openness and accountability are quite new and civil servants and politicians can also go out on the street with new technology – they can have their office in their pocket. People don't have to go to the town hall, government can come to them, in their homes, on street corners, in hospitals, where ever. Civil servants and front line professionals can service the public and provide e-government services that are targeted, personalised, efficient and responsive.

IT can also turn government outside in, it lets in other actors to government: PPPs and PCPs as mentioned. It's also letting in users, or citizens, this is where e-participation comes in. Users make decisions and become co-creators of services – getting citizens involved in creating their own public services. This is on a small scale but already starting to happen quite a lot.

What has been described could also describe the public sector, which has opened up its value chain to become porous. It has become more like value networks than chains because so many actors are involved. The public sector is different, it is doing the same things and trying to use the technology to be more open and porous in that way but there are some important differences in the public sector. The public sector, or open governance, has to be fluid and flexible but also, it is the only truly democratic and participative actor there is. Companies are not expected to be democratic, but the public sector must serve everybody. It can't choose its customers, it must be inclusive. It must also provide a minimum of stability and continuity, including geographic continuity, so that there is not a huge variety in the quality of services. It must be trustworthy and seen to be trustworthy. These are things that the private sector may also benefit from but which are crucially important in the public sector, and differentiate the public sector.

Focusing on e-participation and e-engagement in context. There is the economic crisis but there is also a crisis of democracy across Europe - forging participation in elections, forging membership of political parties – it's a big issue. There is huge growth in e-participation and e-engagement but the government is lagging behind. Most e-participation is taking place in civil society and through the public media – newspapers and broadcasters are online, blogging about policy issues. It's taking place in citizens groups too but not always in governments and that's where they're falling behind to some extent. There is a big challenge there.

A survey carried out shows that, in relation to government policy-making, citizens aren't interested in institutions or the mechanics of how a government works. But people aren't turned off by policy issues that effect them, this is especially true of local issues and much of what we're going to hear later is about local e-participation. This represents, ultimately, potentially, a power shift. Is government ready for this? Do citizens trust their government? Does government trust citizens enough to give them this power? And are citizens ready to take that? Citizens are involved in making decisions, are they prepared to take responsibility for those decisions? There is a change going on here. What is the future of the mandate of the public sector in this context?

A survey shows there are only about 250 examples of e-participation across Europe in the public sector, most at a local level. It's taking place at a regional and local level rather than national or Europe-wide. It is taking place nationally and in Europe but it's much more difficult there because of geographic scale and the numbers involved.

Traditional government is something that is done to people. We are now moving on to doing it for people and perhaps the next step is doing it with people. We are hopefully moving on to user-censored, where things are being done, not for the government but for the citizens. The future will be user-driven. In Europe, and North America to some extent, things are becoming more user-centric and user-censored. User-driven is still a dream, it's not really happening yet but users are working towards it themselves. The other option is “done by others”, people talk about no government, no role for government in this. But as outlined earlier, you can't get rid of government because it is the only actor that has democracy, inclusion etc at the essence of its mandate. But user-centric systems are being seriously considered and the next step is to be user-driven, getting people involved, not just in policy-making but also designing services and also in governance itself. Those three areas are “engagement”.

MADELEINE SIÖSTEEN THIEL, Senior Program Manager VINNOVA, Sweden & **TROND KNUDSEN, Programme Co-ordinator Division for Innovation, Innovation Programmes VIOS, Research Council of Norway,** Norway, gave a very distinguished presentation on

NORIA-net Citizens' Services

This project, NORIA-net Citizens' Services, is turning public-private outside in. It is a coordination project between e-government research funding agencies in the Nordic region. Their work is financed by the Nordic council and by the participating agencies.

The partners include Sweden, Norway, Iceland, Lithuania, Estonia, and Latvia. The project is in discussion with Denmark and Finland. It is not easy because e-government research is not a very well defined research area.

The goal of the project is to put into place a common research funding programme in this region to focus citizen research for innovation in services. This goal is going to be achieved and the research programmes should be starting next year. Often the Nordic and Baltic region is seen as a region of developed welfare societies with a high rate of trust. Yes that is the case, however the histories of the each state is different, for example the recent history of the Baltic states where new democratic constitutions were put in place and ICT infrastructures are quickly being adapted in all sectors. There are also different historical experiences of people of all these countries, for instance, as recently the Second World War. Of course this colours the different approaches when defending and restructuring our welfare democracy, so it is a challenge this project has taken on to bring all these partners together and to focus research within this not so unified region.

The answers for how to cope with demographic changes, the rising cost of welfare goods and new technologies in government are not at all evident in any of these countries or in any specific way at all. Today the Nordic Baltic region is seeing a common research programme. When signatures from all countries are in place we will be able to demonstrate how citizens will be initiators and main stake-holders of research projects for innovation in government services at all levels. Today's internet-based technologies have demonstrated that traditional thinking in certain situations is becoming obsolete. Applied research is also a service activity where the researcher's role is challenged.

In our Nordic-Baltic programme of citizen services we are also turning the role of the citizen from a study object to the leading subject and stake-holders in the research. This is a role turned inside-out both in the research and in the focus projects for public services. This is being carried out not only to make a more appealing and efficient user-interface but also because the role of citizens in modern democratic societies is, thanks to ICT, the role of a responsible, educated citizen with democratic rights.

There is no choice but to be open to the redefinition of democracy as we know it in or societies. The new generations have no chance of understanding the reasons for maintaining government silos and complicated procedures. These were made up for giving bureaucracies room for passing papers through specialist handlers and hierarchies to get the final signature. This was done to protect bureaucrats, making it non-transparent to prevent bureaucrats from becoming open to influence and biased. Now transparency is technically easy to obtain, combined with security and preventing case-handling from being tampered with by outsiders. Bureaucrats are no longer subject to such pressures. Now it is the mindset of people over 40 in established democracies which seems to be the main obstacle.

So now, citizens are put in charge to ensure quick and real progress in the field of practicing government and good governance. Research for innovation in this new Nordic-Baltic programme means encouragement to improve the public services development process by letting citizens fulfil leading roles and challenge today's institutional structure and culture to suggest a replacement of remaining paper-based concept thinking and to develop new conceptualization of government services, locally, regionally, nationally and internationally in developed and open democracies. All the while increasing collaboration between public and private services together with the involved governmental services. This is why e-government funding partners in the Nordic-Baltic region is joining now to spur innovation at regional and national levels. You are encouraged to follow the projects activities along the way.

KEVIN LAING, Head of Finance - Systems and Controls, Newcastle Upon Tyne City Council, United-Kingdom, gave an inspired presentation on

Conditions of Transformation & Collaboration between Agencies

Firstly, it is important look at the conditions that existed at the beginning of this project. With a history of lack of information and integration, the Children's Act was introduced in the UK in 2004. This separated children's and adults' social care and aligned children's social care with education, schools and other children-centric organisations such as youth services. Adult social care was to focus on the over 18s only. The key drivers would have closer links with health and health plans for adults and earlier intervention and prevention for children's services.

Following an inquiry, wide-ranging recommendations were made in respect of children's safeguarding. These included the creation of a national agency for children and families, local directors of children's services in each local authority, the creation of local multi-agency safeguarding children's boards and also the creation of national information sharing tools. Two examples of this were Contact Point, a national electronics solution to put practitioners in touch with one another regarding a child. The roll out of this has already started across the UK and Newcastle city council is in the process of rolling this out now. In addition there's also a common assessment framework, a national electronic system to standardize how individual cases are assessed. There have been some delays in this but a paper-based system has been introduced recurrently in the development of this national system.

In order to achieve this there were some very important collaboration issues. This is a highly visible programme at a national level and under national scrutiny. It is highly complex, with individual practitioners with their own specific sharing, their own specific policies. Each of these agencies had, for example, there own classification policies, as well as concerns about data security. These were all potential reasons not to share information due to the sensitivity of the information. This was compounded by a number of agencies involved delivering different services, each with their own regulatory requirements for sharing and collaboration. Individual agencies had their own policies and processes that required navigation by the project. This needed a high degree of influence and persuasion from the council to achieve the necessary changes. The national contact point team provided courses nationally and in local areas to help with the implementation and dissemination of the policies, which required a high level coordination role between national, regional and local partner organisations.

The overarching accountable body however, was the city council and this provided a local drive for things to happen and to maintain momentum. This presented a number of challenges. The relationships between partner agencies were either non-existent or very immature. It took a long time before the right people were involved across all of the agencies. There was a disconnect between national policy and communicating this to local agencies and partners. Until partners treated this as a priority then they didn't allocate the appropriate financial or human resources. Information-sharing was key to joining up in provision of these services. The council needed to integrate information and systems at a local level. The data had to be in a particular format, as specified by central government but partners either didn't have the necessary data or their systems struggled to provide this data. These issues were addressed by the council and we assisted these partners in obtaining information and putting it in the necessary format for the data to be used efficiently.

These issues have now been resolved and on a daily basis we now receive about 150 000 child related records exchanged between these systems. The issue we had with partners was that these programmes had multiple levels of interaction, this wasn't just about data or changing the way that people work, it was a complete change in the way they operated and therefore we had to have representation from all manner of people: from HR, ICT, government, finance, as well as the practitioners themselves. Each partner agency agreed changes over their operational procedures to ensure they complied with the national guidelines and programme. This was complex and very difficult to achieve. This is where it paid to have legislative clout behind the introduction of these changes, it helped things to happen.

What are the achievements so far? Successful relationships and trust have been built, which is one of the key things to bring to the table. There is now trust between the organisations, who are actively participating in providing information and creating the platforms to get the system in place. There is a shared vision of objectives and delivery of these services, which has led to joint development to transform the service delivery through closer integration and using common data in governance models. The model for communication is better structured and this restructuring is continuing to allow more opportunities for sharing information in the future. Newcastle City Council has now been invited to participate in the national decision making forum and is seen as a beacon of authority with practice that we can now share nationally and regionally.

In summary, to achieve the goals of transformation and collaboration in putting these IT systems in place between the relevant agencies, the elements required are: a lot of information sharing: good communication must be established between agencies in terms of contact and data (especially when we're dealing with vulnerable children), building effective

relationships and trust, the agreement of common objectives and work practices and the commitment of appropriate resources, whether finance, IT, HR or the practitioners themselves. And finally embedding these changes into business as usual and the normalization of these activities within the different organisations.

ODISSEAS V. RAPTIS, Chief Executive Officer e-Trikala, The City of Trikala, Greece, presented his valuable experience in

e-Democracy & e-Participation -- Empowering Citizens

Trikala's municipal council has 26 members, the population of the city is between 50 000 and 70 000. The project was the Mayor's idea, who said it could be too selfish for 26 people to take decisions on the city's future. So he asked the municipality of Trikala to build up a system in which people could participate. The council looked around Europe and around the world for best practices and our tool is based on these practices, including online voting.

In reality, this means that the council sessions are always broadcast live on the internet, so people are getting first impact from the municipal councils. People are also expressing their anxieties and the council are putting out immediate polls for citizens. This has been operating in Trikala since 2007 and it is the citizen's opinion that is the leading power, this is the motto we work from.

The description of the project is a leading e-democracy project for the Greeks and also perhaps by European standards. It is utilized by the Prefecture of Thessaly, with a pilot application within the City of Trikala, through the European “Politia” program. They want to see the use of technology so that citizens can have an active role in the municipality's decision-making. This is a great opportunity for the citizens who feel distanced from ongoing matters to become engaged and participate in the city's decision-making processes. Especially for young people, people who feel marginalised, citizens who live in the villages outside town, working citizens who have limited time to participate and citizens who live elsewhere in Greece or abroad but keep a strong affinity with their home town.

The e-dialogos platform also offers a great opportunity for the City Council to creatively cooperate with all citizens in order to trace and utilize useful policies and courses of action. The project builds upon novel and significant efforts by the City to minimize the digital divide by offering Local Access/Education Centers, Wireless Mountain Networks and Broadband infrastructure for all the citizens who would like to participate. So it is not just on the internet but in our offices, where people with no access or knowledge of the internet can seek assistance.

The tools and application for the debate are: an e-poll which allows citizens to set the agenda of the discussion, people are setting out the issue the municipality has to deal with; an e-Survey system, where the City Council can ask citizens to respond to specific issues of interest; an open e-forum for direct moderated dialogue; an e-Petition system, by collection of signatures, where citizens act on their own initiative;

And most importantly it is in the fully-fledged e-deliberation process, where the innovation of the project lies. This is a ‘serial process’ with a specific time-frame with several well defined and concrete steps embedded in the deliberative cycle, a process where all the above e-tools are put to particular use. Whether all these tools are being used, or they're being used separately, this is how the municipal council would like to get citizens' opinions or how

citizens would like to propose issues for discussion. It requires close cooperation between the Municipality and the citizens, which is based on transparent and secure democratic procedures and the municipality's commitment to openly discuss with the citizen and take their opinions under serious consideration. All the e-Tools deployed are: E-Poll for agenda setting, E-Forum (moderated), E-Survey questionnaires, and Interactive City Council.

As for how the project works the main source of information is the website: www.edialogos.gr. E-dialogos was nominated by the European Commission, as a finalist project for the European eGovernment Awards in 2009. The Awards will be announced during the 5th Ministerial eGovernment Conference in Malmö, Sweden.

CHRISTOS CHRYSOS, Project Manager, Open Technology Services S.A., Greece, made a noteworthy presentation on

Integrating the Drivers of e-Participation at Regional Level in Europe

Ideal-EU is a European project, the idea for which came from three regions: Tuscany, Italy, Poitou-Charentes, France and Catalonia in Spain. The idea behind the project was to find all the drivers that were appropriate for an e-participation process to take place but also to have a highly attractive topic. The target group is youngsters, as they seem to be more interested in saving the future. The aims of the project were: the implementation of a combination of ICT tools, that could allow the involvement of youngsters, not only at a local or regional level but also at a European one. The topic and the range of topics during the public debate that took place, were focused on climate change issues. The final result of this project would be to improve the policy-making process at a European and national level.

The set of tools implemented in Ideal-EU include a workflow model, which addresses two things. First of all there needs to be a platform for raising awareness of the issues we want to address to youngsters and for gathering opinions, so a social networking platform was implemented and the topics were filled in by the three regions of the project. There were almost 1000 contributors to these topics and analysis of this process was used in order to implement and organise the next step of the project which was the organisation of three simultaneous virtual town meetings. A virtual town meeting is essentially a room where people gathered with ICT tools. The meetings were held in all three regions simultaneously. Certain questions were addressed to each table, of 10 users each, and they all voted with tele-voting machines. The answers were gathered from the three different regions and analysed. Then they were submitted to the European parliament and other EU institutions.

The achievements were the successful implementation of a social networking platform. The platform had more than 1000 contributors and more than 2000 members were registered. The virtual town-meeting gathered more than 600 youngsters. One of the questions asked to youngsters after the town-meeting was: what do you think of this e-participation process? Was it helpful? Did you find a way to participate? The impression was: "yes, we like this process, we need these kind of tools and policies that empower us – not just youngsters but all citizens". Their main problem was that most of the youngsters thought that this would not be taken seriously by the European parliament and other institutions. They like the process but they think the result will be useless. This may reflect something they see everyday in their own environment, in their own country. So, something Ideal-EU has learnt is that we may have the best ICT tools and the best participatory processes but if the ones that gather all the results and the decision-makers don't do anything with them then everything is wasted. This is Ideal-EU's main concern.

The future prospect of this project is to build a network of European regions. Ideal-EU has the knowledge of how to build such a participatory process, engaging all the necessary ICT tools. Ideal-EU can start working with other municipalities, other regions, to start building something meaningful not only to the citizens but also for the government.

JAKOB H. RASMUSSEN, Chairman Living Labs Global, Denmark, delivered a most interesting vision on

Your Market for Mobility

The importance of services as well as infrastructures has been discussed, as has the importance of innovation and the importance of economic efficiencies. Another thing that has been touched on is the importance of transparency. Living Labs calculated, as a provocative statement, that if we could make local governments only 1.5% more efficient in developed countries we could actually solve the main problems in the world as estimated by the UN. This isn't a challenge that is very hard to reach but it shows the impact of the efficiency that was presented in some of the earlier presentations and what we can actually achieve.

There are more than half a million local governments so there is a large market for this and one of the questions is of course how do we turn these local governments into efficient innovation systems. How do we bring services into the value chains, how do we chose the technologies or the ways we want to implement efficiencies.

One of the main conclusions we came to in collaboration with the EU is that many of these innovations that we have seen here today already exist. From a European perspective the challenge is really not invention in itself or coming up with new amazing services, it is taking the services that are already there. This is a very interesting offer – taking these services and bringing them to other cities so that they can have the same efficiency gains as have been harvested where the service was used as a prototype. One example of a city came to Sweden to see e-government and e-participation in action, they were very impressed and decided to build their own on their return. This is, to a large extent, one of the European challenges that we have.

A case study has been done of a Swedish company that provides a service for the visually-impaired. It creates a three-dimensional GPS map of a city that enables the visually-impaired to navigate the city. In Stockholm alone where there are around 6000 visually-impaired, this service generated efficiency gains of around €6 million. Taking this to a global level and looking at the number of visually impaired in developed and developing cities, it represents an enormous amount of money. This hasn't been sold anywhere outside of the city of Stockholm where it was pioneered. Animation services, amazing technology using GPS services and broadband services that we want to invest in and harvest efficiency gains – and it sold nowhere. We took this to a customer outside of Sweden, to Spain, where an association for the blind said this is amazing but we don't have the same infrastructures. But introducing this in cities in Spain could harvest enormous efficiency gains. This is an example of taking a pioneering project to other regions to harvest it's efficiency and doing it on the basis of users, taking the citizens' perspective.

Why is this important? Demand-driven innovation is interesting, we know that it may have some adverse effects. One model that Living Labs uses is we look at how these services can be taken from one city to another by integrating some of the methodologies that were mentioned earlier, such as public-private partnerships. Living Labs has a model where we

say these services are usually built on a 50 50 public-private partnership. The second city can be part of this by being a data purchaser and providing part of the funding. It can be procured saving a lot of the R&D costs which would normally have to be invested into developing these services and other services can be built on top of that. From that point it can be taken to the market and presented as a commercial service. This is part of what the Living Labs idea is and part of what these networks are doing, trying to take procurement out of the local context and trying to scale it up.

Some of the immediate possibilities have been looked at on a European level and we calculated more than €256 billion in efficiency gains by taking these technologies to the market. So Living Lab's suggestions, as part of these e-procurement processes, is to look at how we can use these hi-tech technologies such as broadband, wireless, how we can use these technologies that already exist, implement them in our cities and regions. From that the financial crisis can almost be solved, using existing innovations and becoming more efficient at procuring them, using the public sector as a driver for this.

ALAN SHARK, Executive Director, Public Technology Institute - PTI; Assistant Professor, Rutgers University School of Public Affairs & Administration, USA, gave a very persuasive demonstration of

How We Can Measure the Smartness of Government; the Power of Citizens?

The focus of this paper is on how to monitor citizen performance when it comes to all these new measures. We have been threading three different strands together that all require different strategies: e-administration, e-transactions, e-democracy and citizen empowerment. These things all weave together to some extent but they are all different.

When addressed with the question - “what do you think of lots of government people talking about empowering citizens”, a class of students were incredulous. There is a thread of absolute mistrust, why would governments want to do this? They can understand the idea of “transparency” but not empowering citizens which implies that governments will lose power. A very careful path has to be trodden to bring citizens together. In the US there is a 200 year history of mutual distrust of three branches of government: judicial, legislative, executive - one is played off another. My students are telling me they're not ready to push buttons because they don't believe it's going to be taken seriously, which is what you're experiencing.

But this is going to change, when we see these application in the Apple I store. The next year is going to see the transformation of many different applications that will hit mainstream as so-called smart phones become smarter. There are no “dumb” phones today. Some of them are smarter than others but the next generation, when broadband comes into it, it's going to make some many more things possible in a mobile environment.

This will be the third project of its sort on measuring performance. There are two questions: how do we measure citizen satisfaction and what are the metrics of government performance. We're still in a web-centric environment. We look at security, usability, content, online services and citizen response and participation, there are many questions in each field. We can get a sense of governments around the world in terms of how they are portraying themselves to the public, that is a mirror to the world, this is the external face of government. A sixth one is going to be added, which is getting into the mobile environment and looking at things that one might find in terms of making sure that if you have a world

class website that is designed for a PC or laptop, you're going to have one designed for a PDA. The second part of that is you're going to have applications, which is what we've seen with the Iphone and other PDAs which can not only take pictures and report incidents but use GPS to locate the device user.

When you look at the ranking of cities (this was completed in 2006 and is being redone now), it shows where we see the world in terms of digital cities. In the U.S. a good example was the district of Columbia, they have a website and apps store of their own. They are the first to have apps for democracy, which is a great way to get people to say these are applications we want to see. They're now on their second trial and they have some wonderful ideas and people writing software.

There is a disconnect in how we measure. We measure different things. Governments are going to measure how much trash is moved in terms of tonnage, but citizens are going to want to know whether the trash was moved from their street. The government is going to measure response time for emergency services, citizens are going to want to know whether the people sent were qualified. The third thing is number of restaurants inspected. The inspection agencies are very proud of this but the citizens want to know who actually passed and failed. Numbers of potholes repaired is easy to measure but people have introduced a "smoothness of ride factor". There is a lot to do here in terms of measuring because many people have good ideas and they can be good for you and a whole group of people. How does the idea spread in terms of people's perception? That is the question we're asking today.

ANDRÉ CRUCERA, Public Sector Manager, Hewlett-Packard, Romania, [www.hp.com], provided a brilliant presentation on

IT make Citizen's Life Better

How to have a smarter government and empower citizens? There are three main challenges: An effective administration for a more effective business and people activity; Public institutions becoming transparent in order to better inform people and businesses; Overpass digital divide – from an IT perspective, the gap between rural and urban areas.

HP is trying to respond to these challenges through simplicity. The company is trying to propose a very simple way. As Mark Hurd, Chairman and CEO of Hewlett-Packard said: "HP will do everything in our power to help our customers use technology to transform their businesses and make it easier to do what they want to do." There are a lot of topics in this area: virtualization, consolidation, better infrastructure – how to deliver everything as a service, from computing power to business processes to personal interactions. What HP has done worldwide is to invest in education and Young Enterprise, to help young people to make the light decisions and to help unemployed people. This is successful in many cases.
What has HP done in Romania on the topic of smart government?

There are several projects, together with partners not only from Romania. In terms of e-government, HP created an electronic system for public acquisitions. HP also introduced paperless meetings in government. There are also several European-funded projects for local and central administration in Romania. HP were also involved in projects in the healthcare sector – the IT system of national health insurance and the modernization and development of modern and powerful IT systems for hospital management. From the

education perspective, HP has one of the biggest IT projects in Romania – the IT based system which offers e-learning possibilities and facilities to more than 3 million students.

How to have smarter government and how to empower citizens? Here are a few responsibilities that are common to both national authorities and the IT industry. First it is mandatory to define a coherent, long term IT strategy in order to empower citizens and business. From our point of view it is also mandatory to harmonize services provided by different suppliers and standardize IT solutions to optimize investments. And coming back to the gap between urban and rural areas, the digital divide, it is mandatory to generalize IT education in order to offer equal chances and mitigate the IT divide.

Trustworthy e-ID Services in a Digital World, Threats and Opportunities

The **chairperson** of the session, **DENIS GARDIN, Group Vice President, Head of EADS System Design Center & EADS CyberSecurity Customer Solutions Center, EADS Defense and Security Division, European Aeronautic Defence & Space Company**, France, [www.eads.com], set the scene of the session by thoroughly and concisely presenting EADS's view on

Bringing Security to the Cyber-World

The Internet provides more and more critical services influencing large parts of the economy, such as e-Commerce or e-Banking, e-Government and e-Health applications – but also network centric operations, such as logistics, defence, or air traffic management.

However, threat awareness has grown, especially due to a significant rise in offensive, defensive and counter offensive activities by criminals, industry and Government during the recent years generating a significant economic loss. Examples are the Estonia denial of service attack, cyber-crime supporting terrorism and the loss of confidential information.

The technology changes and therefore attack vectors and defensive mechanisms need to change too. The security roadmap needs to align to technology changes.

Cyber Security is a hot topic issue for EADS. The company has developed products, services and solutions for the most demanding government customers in France, Germany, UK, and the USA.

EADS offers a range of services in the field of cyber-warfare and IT security consultancy, identity management, security management and IT security training from high level awareness to the training of IT security operators. EADS has also developed a range of software tools such as software firewalls, virtual private networks, and vulnerability scanners, but also tools in the area of computer software forensics.

The work of EADS in terms of hardware and IT security systems and appliances includes network cryptographic devices, secure routers, hardware-based firewalls, Network Access Control (NAC) appliances but also intrusion detection and prevention hardware.

The session's **moderator**, **MICHAEL STANKOSKY, Professor Systems Engineering, George Washington University**, USA, welcomed the participants and introduced the panellists. He highlighted some of the security attributes of the Knowledge Society, which are security, privacy, integrity, availability, non-repudiation, reciprocity and congruent interests, as well as risk value. Knowledge security design principles are design in, knowledge and information architecture, inventory/ valuation, leadership, management, organization, people and technology, as well as alliances and partnerships. He then conducted the session with great incentive.

SEZEN YEŞIL, ICT Expert, Information and Communication Technologies Authority of Turkey - ICTA, Turkey, exposed in a brilliant way the question of

Cyber Security in Turkey

The number of Internet subscribers in Turkey increased radically during the last 5 years – from 508,014 subscribers in 2004 to 6,179,465 in mid-2009. Especially ADSL usage rates increased considerably due to liberalisation. The household broadband penetration rate (predominantly ADSL) was 37% in 2008. The individual Internet usage rate in April 2009 reached 38.1%. The mobile subscribers penetration rate reached 92% in 2008 and slightly decreased to 89% in mid-2009. As 3G licenses have been issued in 2009, broadband is expected to rise. Internet banking statistics are high: by June 2009 more than 12.5 million people use Internet banking services.

On the other side, in 2008, Turkey was ranked number 8 worldwide for malicious computer activity and number 3 for Spam by the Symantec and Sophos trends reports. It was ranked number 9 worldwide for government targeted attacks, and number 8 both for Bot activity and the hosting of malware on the web. Moreover, the number of Internet banking crimes increased from 15 cases in 2003 to 1,177 cases in 2008.

Turkey has no particular strategy related to cyber security as this aspect is covered by the Turkish Information Society Strategy. The framework for national cyber security foresees different measures: A national cyber security strategy and legislation, technical measures, establishing appropriate institutional structures, capacity building and awareness raising programs, and international cooperation.

Currently four actions are related to preparing legislations: establishing certification (the number of qualified electronic certificates raised from 2,875 in 2005 to 63,567 in June 2009 for e-signatures and from 22,537 in 2007 to 45,691 in 2009 for m-signatures) and use of standards, the preparation of a draft Personal Data Protection Act at the Turkish parliament, and a draft e-Commerce law to be sent to the Parliament soon.

JACOB ARENANDER, Senior Product Manager, VP Securities A/S, Denmark, presented with great devotion and clarity the topic of

Annual General Meetings in Cyberspace

The unit trust Sparindex and VP Securities recently held the world's first AGM. All of the participants, the investors, the management and the board of the unit trust, participated via the Internet and met in an electronic forum.

Just like at a conventional AGM, the chairman started with a welcoming speech, but it was streamed out to investors who could follow it on the screen wherever they were in the world. The scene was then set for participants to speak from the speaker's rostrum, which was controlled by the chairperson as usual.

It is possible to hold an AGM via the Internet using VP's solution. Investors can use their home or office computers to ask questions, cast their votes and participate in all the activities that are part of a traditional AGM.

The possibility to held Virtual General Meetings was adopted in the Danish Company law in 2003 due to international competition, in order to foster active ownership and enable more flexibility in terms of logistics and reducing costs. There is the possibility of partly electronic general meetings, where the shareholder can choose how to participate, and completely electronic general meetings, where all shareholders participate electronically.

The challenges of completely electronic general meetings are to exercise the shareholders' individual rights and to ensure that shareholders can participate, express their opinions and vote.

The functionality in terms of technical requirements required for the electronic system are to enable free interaction among the individual attendees, the company's board and management and the chairperson; to correctly identify every single participant at the meeting(e.g. by using a password or other type of identification mechanism); to determine which voting right the shareholders represent; and to determine the results of the voting.

The Virtual General Meeting solution provided by VP is a Web solution via an integrated white label portal in the issuer's website. It is a multiple language solution, currently available in Danish and English. Pre-recorded material can include texts, images, sounds and films (web casting) and is made centrally available to all participants via the chairperson (administrator). Other communication and interaction between the individual attendees can include real-time and interactive communication which occurs via electronic text on a screen, e.g. by using the chat or forum functionality.

FRANK LEYMAN, Manager International Relations, Federal Public Service for ICT - FEDICT, Belgium, gave an illuminating presentation on

The STORK Project

Throughout the EU, some 30 million national eID cards are being used by citizens to access a variety of public services. Unfortunately, the benefits of various services disappear when citizens try to use one country's e-Identity to access another country's services. The STORK project, co-funded by the EC, will facilitate this situation by enabling businesses and citizens to securely use their national electronic identities and receive services from public administrations while living or traveling in any Member State.

The vision of the project is to simplify administrative formalities by providing online access to public services across EU borders. STORK (Secure Identity Across Borders Linked) will establish a European eID Interoperability Platform that will allow citizens to establish new e-relations across borders, just by presenting their national eID.

Cross-border user authentication for such e-relations will be applied and tested by the project by means of five pilot projects that will use existing government services in EU Member States. These include a common service architecture allowing citizens to use their national eIDs to access e-Government portals across borders; a platform for safer online communication using eIDs for children; a service facilitating students' mobility across Europe; use of eID for cross-border electronic delivery for citizens and businesses; and for testing the electronic process of address change for EU citizens that move to other Member States. In time however, additional service providers will also become connected to the platform thereby increasing the number of cross-border services available to European users.

Security and privacy are serious concerns within the project. All efforts will be made to ensure that mutual recognition of electronic identity makes identity theft extremely difficult. As authentication levels for a given application may differ across Member States, the project will develop “circles of trust” at European scale.

MAURY D. SHENK, Managing Partner, Steptoe & Johnson, United-Kingdom, provided a bright presentation on

Information Security & Identity

Two core points are: The security situation on the Internet is becoming worse than even many experienced practitioners generally believe. It will not be possible to fix this situation without material changes to the rules governing the Internet.

The first part of the presentation illustrated the problem with a case study involving the Gh0stNet network. This cyberespionage network was identified by Canada-based investigators who were asked by the Tibetan government in exile to investigate suspected suspected cyberespionage by the Chinese government. The investigation revealed that these attacks had compromised hundreds of prominent government and private organizations in various countries, and that the attacks were likely linked to the Chinese government. (Note: The Google attacks disclosed after the presentation in January 2010 show similar conduct by the Chinese government.)

The second part of the presentation briefly considered some of the usual cybersecurity solutions (and arguments that security risks remain manageable), and concluded that current solutions are insufficient. It appears that increasing computing speeds and bandwidth favour Internet attackers over defenders. It was proposed that long-term solutions may need to involve changes to the basic protocols of the Internet, and legal restrictions on the right to act anonymously on the Internet.

AUGUSTIN DE MISCAULT, Member Cyber Security Center, European Aeronautic Defence & Space Company – EADS, Defence and Security, France, [www.eads.com], gave a remarkable presentation of

The FC² project

The project FC² (federation of circles of trust and secure usage of digital identity) aims at developing and validating a comprehensive platform allowing the easy and secure deployment of new electronic services, based on seamless federated identity management.

Digital identity management is not an easy task for users: An account is linked to every online service and the number of online services is continuously growing. Personal information linked to these accounts are spread on the web without user control.

The project’s research objectives are to provide identity-aware and personalized services with respect of user privacy. But also the provision of a simple and convenient user experience, targeting user empowerment and trust as well as universality of use across a large variety of end-user devices. Moreover, the project will define and implement interoperable identity federation architecture schemes and provide a high level of protection against digital identity attacks. The creation of innovative business models, acceptable and/ or adoptable by all players in the value chain wil be another important aspect.

The project has a high societal impact and brings added value to all players of the identity value chain. FC² will focus on business models with service providers and identity providers. The project will also work on the legal and governance framework of digital identity management.

The technical vision of the project is to develop a user centric, simple, interoperable and security platform.

VASSILIA ORFANOU, ePractice.eu, European Commission, EUROPEAN DYNAMICS SA, motivated with her talk

ePractice.eu is an initiative of the European Commission offering a new service for the professional community of e-Government, e-Inclusion and e-Health practitioners. The portal enables users to publish and share their real-life case studies; meet with peers from across Europe and expand their professional networks by creating a personal profile; learn from others; rate and get rated

The web portal www.epractice.eu is a real Web 2.0 experience – characterized by a high level of interactivity and high exposure – linking research and real life initiatives. Overall, the portal has 20,000 members from 34 countries and contains news, library items, cases, events updated on a daily basis .Interested parties may receive the newsletter and RSS feeds upon request

In addition, the portal offers an open invitation to propose case studies, news and upcoming events/workshops; post on blogs; share views and discuss with experts , while it promotes a collaborative environment by supporting the animation of communities, in order to strengthen the links between members; foster communication and enhance synergies. One such community is the European eID Observatory

The European eID Observatory is an initiative of IDABC and the ICT for Government and Public Services Unit of the European Commission. The Observatory aspires to address the cross-border and cross-sector dimension of eID; related EC funded programmes, projects and cases, national and international initiatives, but also international and non-EU activities by promoting the exchange of activities, sharing of ideas, experiences and knowledge among European eID practitioners at all levels on a national or pan-European level.

VASILIS KOULOLIAS, Executive Director, Gov2U, Greece

To be included in an update of the Conference Proceedings.

VICTOR-EMMANUEL DE SA, Partner Geneva Solutions, Switzerland, delivered a captivating talk on:

Innovation Precautions

Geneva Solutions is specialized in securing highly valuable information, while on th emove or in storage locations. The company has been called as independent security specialist by governments, financial institutions and corporate bodies do evaluate, to develop or to implement secure e-Services and technologies.

The team of Geneva Solutions has almost all computer security certifications and for four years in a row was ranked among the Top 10 best world teams during the prestigious international hacking Contest the Defcon "CTF" in Las Vegas. The team was Vice-World Champion in 2008 and 2009.

Today, you can be anyone on the net, and each person in the audience could be transformed into just anyone. How being sure the person on facebook or Linkedin is really the person he/she is pretending to be?

Nowadays our digital identities are almost everywhere inside the digital word and worse they are already interoperable without our specific control. e-Government is a lot about confidentiality, integrity, and privacy – but should we trust e-Government solutions? Everybody knows how to develop an application, only some people know how to develop a secured application – but people knowing how to develop a secured web application, with quality and efficiency, are hard to find.

SSL (Secured Socket Layer) is today the standard commonly adopted to transactions security but it remains permissive and suffers from serious gaps of implementation which goes against several fundamental security principles. Using SSL over HTTP, you leave to the browser the most critical steps to initiate the encrypted communication with the e-service, including numbers generation, the choice of the session key (including its length), the algorithm use and so one. Furthermore, the fundamental base in cryptography is the need for Randomness but computers are completely deterministic. So, you don't have any control of these fundamentals security elements, there is a serious security issue!

At the same time, the so-called “hacking” community is constantly ahead of security solutions, as it is able to access and/or control the Internet’s technological architecture.

YVES P. PAINDAVEINE, ICT for Trust and Security DG INFSO & Media IST Programme, European Commission, presented with great incentive and enthusiasm the topic of

Future Internet Trust & Security

The future Internet will consist of a number of different networks covering the entire spectrum of our daily life: Smart objects communicating in our digital living environment (PC, telephone, set top box, audio devices etc); there will be e-Health and e-Health networks; smart transport networks, and smart energy networks. ICT security systems, privacy and trust are key of the future Internet.

There are different trust concepts: first of all there is the concept of “trust” in the sense of a three-part relation, where A trusts B to do an action based on A’s subjective evaluation. This is highly depending on the context. Here, trust is the basis for the decision to go in transaction. Another concept considers “trustworthiness”, which is the level of trust assigned by A to B to do an action. Trustworthy systems give measurable guarantees on risks, resilience, QoS, etc. Finally, there is “identity and identification” – a process approach claiming on ID and access proven to a “relying party”.

Trustworthy systems and practices play an important role in the democratic values of our society: legal code, institutions, moral code, reliable technology, etc. Societal trust strongly influences economic growth. It took generations to build our democratic values. Europe must foster them and carry them into the digital age.

Why are we at this stage? A lot due to the fact that the Internet and many of the surrounding technologies have been developed by considering that all users are to be equally trusted. However, soon people found out that what happens to the Internet world is just an “image” of the real world, with some additional difficulties.

Nevertheless, the EU has many strengths to face the challenge: There are the EU’s societal values (freedom, privacy, security, social protection) and a comprehensive legal framework for data protection and privacy. Moreover, the EU disposes of a strong research and technology base in ICT and other disciplines and its industrial sector is strong in mobile communication, services, consumer industry, smart cards. In addition to this, the EU has a history of diplomacy, consensus building and cultural diversity.

An EU-wide report into online security and trustworthiness, known as the RISEPTIS report, sets out policy recommendations and guidelines on trustworthiness and security for life in an increasingly digitised world. The RISEPTIS recommendations are the following: Strengthening research to address the issues effectively in order to facilitate the creation of a trustworthy Information Society. Launching initiatives for the creation of a trustworthy Information Society bringing together industry, technology, policy, legal and socio-economic actors. Creating a EU wide e-Identity (claims) management framework (privacy protecting; federating country’s eID systems; global meta-level interoperability; vertical integration). Further developing the EU data protection and privacy legal framework (shifting towards an ecosystem of law and technology). Large scale public-private actions to build the Information Society are needed (legally accepted multi-media e-docs; EU service platform implementing legal framework and governance); And the engagement in international discussions on standards, frameworks, agreements and interoperability.

PATRICK FRANCIS, Executive Expert Cyber Security, EADS Defence & Security Systems, United-Kingdom, [www.eads.com], demonstrated with great knowledge

Federated Identity Management as a Managed Service

Federated identity management it enables the sharing of user identities across within a circle of trust.

A managed service has a number of benefits both from an economical and operational point of view. One economic benefit is that no initial capital outlay is required. Moreover, there is no need to recruit and retain specialist skills and it is more economic for small companies.

From an operational perspective, a managed service allows communication between different trust areas, the management of export controlled data, international working, and supplier and customer interaction.

A number of important service provision issues should be considered in this context: The code of connection, i.e. the using organisations must not be able to compromise the system and must have full trust in the integrity of the system. But also the levels of assurance (there are different regulations and standards depending on national regulations and the type of data, e.g. finance, personal, IPR) and dependant services (secure cloud, remote access (encryption) electronic and physical authentication). It is also important to consider the different service levels requiring the availability of new certificates (registration) and online verification. Trust between users may be at several different levels, within an organisation,

between two organisations or between a group of organisations. Thus, the service has to be scalable (independent/ bi-lateral/ multi-parties). And last but not least: There must be confidence in the provider to correctly verify the certificates (non-repudiation).

IULIAN FOTA, National Security Advisor to the President of Romania

IT&C Development Impact on Globalisation

Iulian Fota delivered his presentation in Romanian. A translation of his presentation will be included in an updated version of the Conference Proceedings.

Innovation & Sustainable e-Health

OCTAVIAN PURCAREA, Worldwide Health Industry Solutions Manager, Microsoft EMEA, France, [www.microsoft.com], opened eloquently the session, and made a bright presentation on

Knowledge Driven Health – Solutions for Health

Worldwide, today, there are 260 million elders; 1 billion citizens are overweight; 860 million patients suffer from some type of chronic disease; 75-85% of all health care spending targets chronic diseases; and globally there are only 18 million hospital beds in 200,000 hospitals to treat the sick and wounded. An ever-increasing shortage of doctors and nurses, and skilled ancillary personnel, magnify the increasing demand by citizens for healthcare services. As populations in developed nations age and the impact of public health issues such as smoking, obesity, poor diet and lack of exercise grows, these costs will continue to rise -- placing a significant burden on governments who provide health care for their citizens as well as employers who provide it for their workers. Healthcare spending in the United States alone reached USD 2 trillion by 2006, consuming 16% of the country's GDP -- and for all that, it only ranks 72nd among OECD countries in quality of care.

A rising percentage of healthcare budgets are being spent on the management of chronic or long-term conditions such as Diabetes, COPD, and Cardiovascular diseases. Estimates from the International Diabetes Foundation are that costs from this single chronic condition could overwhelm most public healthcare systems by 2025. As stated by the OECD, the adoption of systems for prevention and early diagnosis of such diseases by 10% of the European population could prevent more than 100,000 early deaths and save more than EUR 20 billion annually.

Though new diagnostic modalities and new medication discoveries are occurring daily, the delivery of healthcare has not changed in a significant way in more than 50 years. Important patient information lives in too many different "silos". Too much information is still captured on paper and dumped into filing cabinets. To get a complete picture of patients' health—and to make sound medical decisions—healthcare providers must synthesize information from many different sources, meaning everything from X-rays and health records to ECGs, MRIs and CT scans. This is fast becoming an excessive burden.

It is important to shift from a reactive healthcare approach to proactive one. As stated by WHO, the major causes of chronic diseases are known, and if these risk factors were eliminated, at least 80% of heart disease, stroke and type 2 diabetes would be prevented; over 40% of cancer would be prevented. There is an increased need to share clinical data in order to track new diseases, coordinated public health infrastructures will become more critical than ever, in order to reduce the number of health incidents and their severity, to better control costs, to get happier and healthier patients and to increase employee and clinician satisfaction.

Everyone involved in healthcare should have the right (evidence based) knowledge at the right time, improving outcomes, saving cost and improving quality. A broad range of IT solutions have to come together to give all those involved the knowledge they need along the continuum of care, from products like the Personal Health Records (such as HealthVault),here individuals can store their own health records, to collaboration and productivity tools for health professionals, to business intelligence and other epidemiology and statistical tools for insurance companies and other players such as the local and regional governments. All of this has to be underpinned and connected on a secure, robust platform which would ensure the fundamental functions such as messaging identity and access management, unified communications, system and document management etc.

Microsoft is trying to give the world a more comprehensive vision – not just supplying the nuts and bolts, but developing specialised solutions for example, for telemonitoring and disease management. The company is working closer with many partners, adding new applications to the end user solutions, with products like HealthVault and Amalga. With HealthVault and Amalga, Microsoft is releasing healthcare information, traditionally trapped within data silos, to empower citizens and professionals

INGRID ANDERSSON, Senior Executive Advisor, Patient Certificate Scheme, Sweden, provided a captivating presentation on

Turning the Tide on e-Health: New Learning Curves

This presentation considers the issue of e-health from a new perspective – not the traditional health care perspective, but the individual's view. How the individual can learn to spend his or her life in a very productive and healthy way.

In today's global health care environment, globalisation is increasing all costs for chronic diseases, which must be counterbalanced. There are also the pharmaceutical companies and health workers trying to strive for better health care. Nevertheless we have so many health stories today that result from our daily routines. Each day people are doing things that may not be so good for their health. And there are many of these that could be empowered by ICT – learning how to maintain better health and how to prevent problems like diabetes, HIV, Malaria. Many people are not informed about these issues and ICT provides the tools to make people aware.

There is a very stagnant situation, where the government likes to invest in the equipment industry, research and technology in technical universities and in bio-tech and chemical industries. But there are weaknesses in the organisation of health authorities and in the patients. Costs are rising and something must be done about it. This is where ICT comes in. Empowering people by way of ICT, we can get the wheels turning again in a different way. These four factors need to work together at the same time, otherwise we will not be able to make a change in lifestyle induced health disorders.

What is needed then? The right tools for people to change their behaviour – changing behaviour is actually the most difficult thing to do. A methodology must be used to change behaviour and that has been worked out by the researchers in this organisation. Incentives must be provided, because the incentive of being healthy is too far away. There must be a quicker incentive and ICT can do that.

There also needs to be involvement with other social relations and ICT can do that. Furthermore you need direct interaction, the interaction that is lacking when you visit the doctor. ICT can provide the interaction that is needed for behavioural change.

In this field, we are always trying to help, to cure – but it's really about giving people a little incentive to change one thing. This scheme is built on the idea of seeing the whole picture and, depending on the health disorder, seeing what needs to be changed and having the least impact for the biggest output.

For the scheme there is a school for innovation through ICT, we can use the websites, mobile phones. On the websites you get interaction, it can be simple, social and incentives can be created in a very short time. Whereas it takes 20 years to develop obesity or cardio-vascular disease, there is feedback here that gives you incentives directly and you will see a change in behaviour in a different way.

This is used in different ways. There is currently testing being carried out in diabetes in the Middle East. Testing is being carried out in the US on obesity. In Northern Europe there is a test on depression, where people can type in how they are feeling as the problem when they go to the doctor is that they can have trouble expressing and remembering their feelings. If they have already recorded their feelings, they can spend less time with the doctor and become more efficient. It will be more interactive because the information is already on the screen.

The question remains, who will finance this? In the US, the health insurance companies have an incentive to lower the insurance rate if people take on this learning process. In Northern Europe it's the employers that are interested because they could have a healthier workforce. So there is a business model, the behavioural change methodology and a step by step approach that will be discussed in more detail later.

RAED ARAFAT, State Secretary, Ministry of Health, Romania, delivered an excellent and bright view on

Emergency Medicine in Romania
Using Telemedicine in Emergency Care

Mr. Arafat presented achievements in the field of telemedicine over the last few years in Romania. Telemedicine is implemented at the pre-hospital level and at hospital to hospital level – inter-hospital level.

In the pre-hospital field an experimental project was started in 2003 in one county, which was implemented on several first response vehicles – fire-fighters and paramedics started to use EKG real time monitoring, EKG 12 lead, pulse-oxymetry and blood pressure monitoring. There is a direct line to talk to them to guide them through certain things, for example resusitation, until a doctor or nurse arrives or until they reach the hospital. The need for this is that the Romanian system was very much used to having physicians on vehicles, which is something impossible to keep doing except for in very critical cases. So the idea is to implement a system with first –responders, where, to give them confidence, they can call a physician at any time and have someone advise them based on the data they are transmitting.

This system is being implemented on 800 ambulances in Romania at the moment and has already been functioning for a while after the experiment we did in 2003, after the Ministry of Health bought a new fleet of ambulances. The type B ambulances which can either have a doctor or a nurse on them have all the systems to transmit all the data to the hospital and we have 8 regional hospitals that would be receiving this from them and discussing it with emergency departments.

The hospital to hospital telemedicine system is a newly implemented system and is applied now to one out of eight economic regions in Romania, where we connected the regional hospital with the helicopter base to 40 small and medium hospitals with emergency departments. The system is connected to their critical cases room, where there is video, audio, high definition camera, EKG 12 lead, pulse-oxymetry, blood pressure and the transmission, where the technology is in place, of ultrasonography & radiology. So the first response units and especially the ambulances have this kind of portable equipment, which can transmit data at the touch of a button to the screens in the reception centre, with direct discussion. This system in being very well implemented in Romania at present.

This is the construction of the 3 hospital telemedicine system, this is the old generation of the same equipment, which was used between 2003 and 2007 until a new model was introduced. The vehicle transmits via GPRS to an antenna. The whole thing is coordinated by the government communication service, so the costs are very low, even if we are using private mobile phone companies. All the vehicles and all the communication costs less than 6 euros a month per vehicle, which is very acceptable when you see it in terms of the benefits.

The transmission can go either to an integrated dispatch centre or to the emergency department itself, which is assigned to receive such data. There are eight economical regions in Romania, each of these regions has one or two reception centres for the pre-hospital system. The middle region together with a county from the North West region are the experimental site for the inter-hospital telemedicine system between emergency departments. This started to be functional on the 14th August 2009 after a testing period of 2 months. The system includes the possibility to connect directly four of the sites, there are at least two places where you can coordinate, talk to the doctors, see what you are doing. There is a remote controlled camera which can examine the patient. On each side there are monitors to display the patient's vital information and everything is being recorded and kept for educational purposes as well as providing the opportunity to revise and discuss a case.

The connected area is up to 18,200 km. The connected hospitals are all in neighbouring counties, so the helicopter can get to any of these sites in under 40 minutes. Most are attainable in less than 30 minutes which means that if we see the patient is critical in a local hospital, moving the patient to multiple locations can be avoided while we decide together what the best option is. With these communication systems it is easier to take sensible decisions before sending the helicopter. And this is exactly what is happening now. The physician dealing with it may be on the helicopter or on the mobile intensive care unit or in the emergency department – an extra physician is not being paid for at this moment, but this is sufficient to deal with this work.

The system, which will be discussed in more detail tomorrow is becoming a fully integrated system involving several levels of care starting from the paramedics to the general practitioners up to the highest level which is the regional hospitals and emergency departments. The new technology allows us to connect these sites via telemedicine and will allow us to do many things in the future. One example is for acute myocardial infarction,

which is being funded by the state. The diagnosis will be put into the telemedicine system and the patient will be sent to a nearby centre, this will save time for the patient to be transferred and so on. This requires the involvement of this sort of technology. This technology means we can work with less specialist medical professionals, so training time will also be decreased for people in this emergency system.

In conclusion, telemedicine is opening new horizons in medical care at all levels including emergency medicine. Before it had been used more in chronic diseases and primary care but now it is used in acute, life-saving medicine, used in real time. Telemedicine is not a luxury, the costs are not very high. Also the inter hospital telemedicine system was installed using the governmental service for communications and they are the ones that maintain it so the costs are very low. So finally, telemedicine is an economical and cost efficient solution for the health system, where many of our hospitals lack certain specialisations. Many hospitals do not have emergency physicians, or anaesthetists for critical patients. So having back-up from this regional centre is very important for them. Part of this inter hospital system – the inter hospital data transmission system – was developed in Romania by a Romanian company. The video and teleconferencing system was imported from outside.

PAOLO BALBONI, Fellow European Privacy Association - EPA, Belgium, [www.europeanprivacyassociation.eu], shared some striking thoughts on

Cloud Computing for eHealth

Key legal issues: Data Protection ('Privacy'); Confidentiality; Intellectual Property; Professional Negligence; Outsourcing Services / Changing of Control.

'Personal Data' shall mean any information relating to an identified or identifiable natural person ('data subject'); an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity.

'Sensitive data' shall mean personal data allowing the disclosure of racial or ethnic origin, religious, philosophical or other beliefs, political opinions, membership of parties, trade unions, associations or organisations of a religious, philosophical, political or trade-unionist character, as well as personal data disclosing health and sex life.

'Processing' shall mean any operation or set of operations which is performed upon personal data, whether or not by automatic means, such as collection, recording, organisation, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, erasure or destruction.

'Controller' shall mean the natural or legal person, public authority, agency or any other body which alone or jointly with others determines the purposes and means of the processing of personal data.

'Processor' shall mean a natural or legal person, public authority, agency or any other body which processes personal data on behalf of the controller.

Controllers duties and obligations: Principles of lawfulness, finality, proportionality, and data minimisation; Information notice and consent; Data security measures; Data subject's rights Data transfer to 3rd parties/countries (Consent / Standard Model Clauses).

Possible sanctions

Failure to comply with data protection law may lead to administrative, civil and also criminal sanctions, which varies from country to country, for the Data Controller. Such sanctions are mainly detailed in the relevant statutory instruments by which the Directive 95/46/EC has been implemented in the various EU Member States.

As the presentations so far have shown, there are many people working to make these systems work better, to make them more secure. A lot of legal issues have also been brought up, for example data protection. There is technology that is coming out very fast on the market: cloud computing technology, that is announcing this legal issue. That is what this presentation is going to be about.

Over the last four months ENISA, a group on cloud computing risk assessment has been working. ENISA works by making different scenarios, one of which is the eHealth scenario. This presentation will share the preliminary findings of this study with you. It is going to be very pragmatic – discussing eHealth, looking at the legal issues, focusing on data protection issues and how to deal with them.

ENISA thought about a scenario where the patient is remotely controlled by a mobile device that brings patient data to a centre where professionals will analyse and discuss the data and possibly give input back to the patient. All the services in this e-health scenario are presumed to be running on a cloud computer, a federated infrastructure.

The legal issues are not just related to privacy and data protection, there is also a confidentiality issue – the knowledge that will circulate in the cloud and the patient records. There is also the intellectual property and professional negligence. If something goes wrong in the cloud or if the service is interrupted or data unavailable, then the service provided to the patient will not be up to their expectations and could possibly cause damage. In this case the eHealth provider will be held liable for negligence. Think about the outsourcing or services and the changing of control – you choose the cloud provider because you trusted it, you thought it has a secure data protection policy. But what happens in a federation of clouds, where there is cooperation between cloud providers or outsourcing of services to other contractors. You might want to know about this or even not want the cloud provider to do that.

In terms of privacy, from a European perspective there is the data protection issue, which is currently under revision so in a few months there should be a new regulatory system. The most important thing is to understand when the directive applies. It applies when the processing of data is made by the data controller that is established in a member state territory. If you think about the scenario and the health care provider – he will be the data controller. If they are established in Europe then the data protection directive will apply. It also applies if the data controller is established outside the European union but uses technological equipment to process the data in the European Union. That's very important – the directive applies mainly when the data controller is established in the European Union meaning that the place of processing of the personal data is not relevant from the data perspective. There has been much concern about that so far but is actually doesn't really matter.

Personal data is any information that is directly or indirectly related to a person. Sensitive data is data of a more sensitive nature for the data subject, health-related data in the health care scenario. This means that if you want to process that data you have to comply with a more stringent regulatory framework. What does processing mean? Basically any operation carried out on data: collection, recording, organisation, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, erasure or destruction.

In our eHealth scenario we definitely do processing of data and sensitive data. It is very important to understand who is the controller and who is the processor. The controller is the one who decides what to do with the data. The processor is the entity that processes the data on behalf of the controller. In our scenario the controller will be the eHealth service provider because it collects the data and decides how to use it – mainly to try and find medication for the patient. The cloud provider will most likely be an external processor, external meaning not within the data controller organisation. This means transfer of data, which can bring about a lot of issues. There needs to be more clarification around this point, because the directive is not very clear who is going to be in this kind of setting. The hope is that article 29 will work, that is all the data protection authorities in Europe all together will try to clarify the matter.

In this scenario, the data subject will be the patient, the controller will most likely be the eHealth service provider and the external processor would be the cloud computing service provider. The controller is the one who will be liable and has to comply with duty and obligations. The controller is the one who has to insure, to some extent, that the data processor will also comply with the obligations. This brings quite a lot of issues if you think about the relationship between the controller and processor, between the eHealth provider and the cloud computing service provider.

In this directive there are several principles, for example the data must be processed in a lawful way. This means that the controller has to guarantee that not only the controller itself but also the processor will process the data in a lawful way and stick to the scope of the data and try to minimise its processes. Information notice and consent is another pillar of the data protection directive, the data subject must be informed of the processing that is carried out with his or her data. You must also have the consent of the patient if you want to process the data and definitely if you want to transfer the data.

A very key issue is data security measures. Data security measures are the biggest concern for a company, or in the eHealth scenario, for the health care provider. This is because the directive and the laws that apply to the directive in the member state have very stringent security measures, called for example, minimum security measures. If these are not complied with then there are fines and you will face a criminal liability if you don't comply with minimum security measures. This means that the data controller has to also check that the processor, so the cloud computing service provider, has minimum security measures in place.

Data subject's rights: the patient, in this case, will have the right to know the amount of data that is processed, to correct it and also to block the processing of data and ask for it to be deleted. This means that the eHealth service provider needs to have an agreement with the cloud computing service provider to be able to receive that information and if the patient asks for their data to be removed or corrected then the cloud computer service provider has to do that. Finally another key issue is the data transfer. When you go to the cloud you transfer

your data from your organisation to a third party organisation. This third party organisation can be located in Europe but also outside the European Union, possibly in a country that does not guarantee a minimum level of data protection. Therefore you must have the consent of the patient meaning that when you collect patient data you have to ask for the specific consent to transfer their data to a third country, to the cloud provider. If you don't want to have the consent you still need to have something in place, the directive talks about model clauses for example, which is a contractual agreement. This must be taken extremely seriously because failure to comply with data protection laws may lead to administrative, civil and even criminal sanctions.

So how to solve this problem? We have to deal with the legal means that we have. The directives are sometimes not clear so we need a very detailed contract in place, that's the only way. And in a contract what do you have to look at? You have to look at the scope of the processing – the contract between the eHealth service provider and the cloud provider. The scope of the processing must be there and the cloud provider must agree to process the data only for that scope. The cloud provider on the other hand guarantees that the eHealth service provider collects the data in a fair way, like giving the information notice and asking for the consent of the patient. Finally you want to have very detailed security measures in place, because we're dealing with sensitive data. They need to be specified in a service level agreement or in specific annexes. As previously mentioned, if the patient wants to enforce their rights, there must be specific laws in the contract that say the cloud provider will cooperate with you in order to tell the patient how the data is processed and to modify, rectify or delete it. The other important thing is that you need to have, in the opinion of ENISA, model clauses in place in order to transfer data. This is more important even than the consent because actually the patient can withdraw the consent and if the patient withdraws the consent you need to get the data back from the cloud computing provider or the data cannot be transferred any more. Whereas if model clauses are in place, there is a permanent framework to send the data to the cloud provider and process it in a fair way.

Last but not least, take the example of the NHS in the UK – they have a huge government power, which can sit down with the main cloud providers, for example Google of Microsoft or amazon and think, if you have enough bargaining power, you can implement penalty clauses if they breach data protection law. There could even be a termination clause that if they breach data protection law the contract can be unilaterally terminated and you can move to another provider and have all the data back.

JUDITH CARR, Founder and CEO Envision Consulting LLC, USA, delivered an inspiring presentation on

E-Health: Transformation Beyond Technology

In this presentation we look at more specific applications as they pertain to health care, looking at health care from a futuristic point of view – looking at options for running health care from an organisational perspective. As you know in the United States, we are definitely at a crossroads. Politically there has been a lot going on and a lot going on in the health care system in terms of pushing things up and making it available for everyone. At this crossroads, if we go down one route then we're going to continue with escalating costs, which in some cases are 50% higher than anywhere else in the world and we still have low patient satisfaction. Or we can change the way the industry thinks about running health care by adopting creative business models and using innovative technologies.

The vision for health care is health care by design and the key the transformation is to turn the prism a little bit and not look at it through a health care perspective but to look at it through an organisational perspective. This presentation is going to touch on three things today: laying out a brief snapshot of health care in the US, identifying a vision and a strategy for going forward, introducing a model for health care reform, one that's driven by organisational competency and facilitated by a focus on technology.

In the US, health care is in a state of disarray. There is no common mission across the health care industry. In a perfect world there would be a collaborative health care system that would provide a strategic enterprise approach to producing cost-effective patient-centric medical services. But we don't have that – health care is very disjointed across all the disparate health care practitioners and organisations. They have conflicting missions and they are operating under a very antiquated cottage industry model. So the business model for many of the health care organisations in the US is the piecework model where you come in and see one doctor, the doctor runs a certain number of tests, then you're sent to a second doctor for a second opinion, some of those tests might be repeated or you might have new tests. In other words, every time you touch the health care industry it's an additional cost so it's an industry focused on the bottom line and the winners in this are the providers and the people who run the health care insurance. The patient experience is actually a byproduct of inefficiency and inattention. A couple of the key issues in health care in the U.S.

1. Escalating costs – the national health care expenditures exceeded the economic development gross domestic product in every decade since the 1970s. It's growing 2.4% faster than the gross domestic product. From the 1960s it was only 5.2% of the gross domestic product and health care costs by 2008 are pushing 20%. So health care costs are growing more rapidly than costs for any other industry. The key question, if we're really thinking of transforming the health care industry is why? Why are costs for health care in the US going up so quickly and what could possibly be the justification for this? What we do know is the current health care delivery model has outlived its ability to perform and we are demanding a more rational model. The more we know about what is wrong with the system, the more we can focus on envisioning a future system that is more streamlined and more patient-focused.

2. Inadequate technical systems – this is a huge topic. Health care conferences are full of process integration and work-flow discussions. Here we will just touch on a couple of things. Health care is very siloed in the US, it's operated along more functional lines, with no regard for the enterprise approach or the big picture of health care and the technology that drives health care. Many of the health care decisions are driven by silo needs. Individual organisations purchase a particular health care application with no idea as to how it fits into the enterprise and how the technology people are going to maintain the system once it's up. Decisions are often made by people because a presentation is made on a new health care application. It sounds great, it meets the needs of a particular group, so the decision is made to purchase it. But often these out of the box health care systems cause more problems because they don't consider the culture of the organisation and the ability of the health care organisation to actually integrate this technology into everything else that's going on. So the result is the culture and the organisation are often disrupted rather than helped by new health care applications.

The key is that we need to create an enterprise framework for driving mission outcomes while streamlining and automating processes.

In the late 1990s in the US, business and government transformed their operating models using IT to actually align business and technology to drive the outcomes required of organisations. They moved to more net-centric models. The new approach to crafting organisations was really based on the intersection of business and technology not on technology or business alone. The paradigm shift was dramatic, it drove incredible cost savings and changed the focus from tactical backroom thinking to using IT to craft fully integrated business models and it laid open the opportunity to develop entirely new service delivery models. But health care has not embraced this new IT paradigm. There are pockets of innovation within technology, within health care but they have failed in the US to do some simple things like developing electronic medical records, e-prescribing or computerised physician entry systems. It is not coordinated and what is happening is it is keeping us from developing some of the most simple applications that could really move the health care system forward.

There are guiding principles of developing health care in the future and so every decision that is made will be a focused decision aimed at driving the prescribed outcomes. Hopefully this will move us away from the random decisions that are less effective and are causing a disarray in US health care. This will become the framework for building a model of health care service delivery. The strategy for health care transformation is really a critical component of crafting and implementing a viable transformation strategy and we're going to think about this and do this by redefining the competencies that it takes to orchestrate and drive the health care industry.

Historically, the people driving the health care systems, the administrators come out of the physician community or the nursing community and so decisions around running the organisation are based on that very extensive background and what we're proposing is that now we add another element to that, which is looking at some of the organisational competencies that will help run large scale change. So the missing link in the current system is a well developed organisational perspective.

A model was created for health care transformation, which has three very distinct parts. The first part is the vision or the requirements for the future of health care and it's based on the principles, which are outlined below. The second section: how you orchestrate the vision, is the competencies that the health care system needs to hone in on to drive the outcomes. The third section is the actual outcomes, which are more patient-centric and use technology.

So the foundation of the future is in the guiding principles: Economic viability – in most health care systems in the US, those systems are run for a profit. So decisions need to be developed that will drive costs down and keep patient care up. A system needs to be created that produces a profit that is reasonable. Right now health care profits are not reasonable in the US. It needs to be technology guided – the enterprise level technology rather than buying pockets of technology. Guide achievement of patient-centric care – it needs to be patient centred. Address staffing challenges – you need the right workforce: once you define the outcomes you want to achieve, you have to work backwards in terms of grooming the right competencies for each level of care. Guide design – innovative ways to provide health care.

So the model is built on these principals. In terms of the competencies, lets look at health care competencies in brief. In a search to see whether there were different perspectives on health care competencies for executives, it turned out that they were basically the same and tend to be more generic. Like leadership, communications, professionalism, knowing the industry – these are generic and you have to have them. The last competency they talk

about is building on business skills, which leads us on to look at organisational competencies.

Whereas the health care ones are generic or specifically focused at health care issues, when you bring in the organisational competencies it gives you a new approach to problem solving so you're actually viewing health care through the lens of a more innovative approach for the faltering industry and it focuses in on new ways of running rapid and enterprise-wide change. So it is more futuristic in the way that it operates. A couple of the key ones are organisational design and one of the things that's really interesting is that there are a variety of different models emerging on how to run health care. One is a specialist hospital called a focus factory, this provides a subset of care: cardiac, orthopaedic – something very specific. It's much more cost effective because instead of serving all of the areas of health care, like most hospitals in the US do, it focuses on one thing and gives you higher margins, focused expertise and higher volume. So it's a collection of specialities operating in a whole but in different places.

There is also a phenomenon called "medical tourism" and in the US, costs are so high that many people are going to under-developed or less developed countries to get care and it's costing the US revenue. In 2008 it was about $68 billion. So it begs the question of a hybrid sourcing model, if you got in front of it from an organisational perspective you could design the right sourcing model and you could take care of the costs and the people that way. So the key point is one model does not fit all, we need to be creative in organisational design.
The next thing is IT governance – this paper only touches on it but it is extremely important. With the siloed systems and solutions, there is a replication of expenses. There is a certain level of things that is done in every health care organisation vis-à-vis technology, that if you crossed the bigger picture and performed more on an enterprise level, it would be more cost effective and still provide the level of care required. So there are new and emerging technologies, one of the examples in the US is the veterans administration and they have shifted to having care at home, but they're more advanced because it's a public sector organisation and they have the technology to support health care records. So when you plug it in at home, it transmits and saves the patient coming in. The other competencies are change management, organisational culture and workforce design. The key point to be made here is these organisational competencies are very high level. People go to school for years and have years of experience in running large scale change in designing organisations to drive outcomes. So it's important to have people that are expert in those areas working in conjunction with the health care community to drive the change.

The bottom line is we're in the midst of a perfect storm – it's time to bring all the capabilities together to drive the kind of health care system that will better serve the patient. A chapter has been written for the eHealth book coming out in January – please get in touch if you would like more details on this.

ELINAZ MAHDAVY, European Affairs and Strategic Partnership Manager, Orange Healthcare, France, gave a very clear and captivating overview on how telecoms contribute to innovation

FT Group Telecom Contribution to the e-Health Innovative Services

ICT brings benefits for all health players – professionals, patients and doctors. It improves care efficiency to give better information and connects players. Orange health care strategy is not at all to substitute medical diagnosis or professional health care but it is more of a

contribution in the role of intermediary in the global end to end value chain by managing the network but also by giving services of authentication, security, hosting and data storage. This can be at the hospital, at the doctor's practice or at home.

Our approach is patient-centric, which means helping the patient to have a better position with eHealth, either at the hospital by having a multi-media room or on the move so the patient can be out and if there is an accident, for example, they could have a mobile, with mobile tele-assistance. A panic button can be directly linked to the tele-assistance, they can be geo-localised and get emergency help. There are also bracelets for patients suffering from Alzheimer's, they can then be geo-localised if they get lost. Or at home, to have the hospital at home and push away as much as possible the dependency of elderly patients.

These are the solutions that Orange health care is deploying to contribute to eHealth, so that patients, health care professionals and hospitals can have a better situation

Orange is improving its solutions by working hard in its Orange labs all over the world with the R&D network.

As a conclusion, successful innovations in eHealth require the building of sustainable models because technology is no longer the problem but we need to have a sustainable economic model by defining the health care ecosystem. Processes need to implicate health care professionals, patients and all the stakeholders of the ecosystem. Orange health care believes in innovation with business partnership in the value chain with an assessment of each launched project to ensure its delivery.

THOMAS OSBURG, Director Europe Corporate Affairs, Intel Corp, Romania, [www.intel.com], provided a most interesting perspective of Intel's activities in eHealth.

When we talk about innovation, we have to look at where the benefits of innovation are. In Intel there are three major areas: the cost of care for patients with chronic disease and also the administration costs; the quality of care – its practise and delivery; the excess. These are the issues Intel is addressing.

Innovation can be radical or incremental. When you look at how technology is being applied most of it is incremental, which is leading to positive change leading to increased wealth, and is critical for policy makers and the public health systems. Intel is a technology company with a long track record as a technology innovator. Based on the role as a recognised innovator, Intel uses these innovations to drive sustainable programmes. But in the area of eHealth, Intel is not driving them alone but always looking for partnerships and coalition.

There are mainly three areas to talk about – there are the health care providers on one side who can improve the quality of care, the work-flow, cost and accessibility. Then the bio-pharma companies, who can accelerate recovery and optimise e-trials. Finally governments and ministries of health have to ensure better care to more people.

When addressing global health care we are looking at the holistic approach. There are four factors in this holistic approach:

Improving acute care in institutional settings. Despite tremendous clinical advances, the lack of integrated digital information throughout the health care system still effects the quality and the access to the service. This lack of digital information in the end makes it harder for

hospitals and bio-pharma companies to meet their business, clinical or societal needs. Intel is working with health care leaders around the world to help address these challenges by delivering innovative leads in digital technologies and integrating them into the global health care environment.

Advancing personal health technologies – this is a customised approach. Intel is committed to providing better care for the ageing and ill, so these personal health care solutions are based on specific needs. Like many other companies, Intel is conducting people-focused research and supporting rigorous standards and policies. Health care is an information intensive enterprise. We still see paper-based processes and incompatible systems too often, making it difficult or impossible for individuals, families and health care professionals to access the right information at the right time.

Intel is an innovative company with a lot of research to assume their role in health care. For example, Intel's ethnographic research has observed and interacted with more than 1000 households and 150 hospitals in more than 20 countries worldwide. The key research centres around four areas. 1) Ageing - if you look at the number of people over 65 will be more than 2 billion in a couple of years from now. 2) Clinical care – researchers focus of how information technologies can empower doctors, nurses and other clinical professionals to deliver high quality and better coordinated care. 3) Prevention – preventing illness and injury is the most challenging. Researchers are exploring ways to monitor relevant health behaviours and provide the right kind of feedback to help people make meaningful changes. 4) Regional aspect – in under-served regions there are many people without access to adequate care, in emerging and developed countries.

Here again Intel has been working with partners and coalitions, especially many research universities over the last 10 – 15 years.

Finally, in terms of products, here are some of the solutions or products in place:

- the inter-health guide, announced about a year ago. It's a management tool designed for health care professionals who treat patients with chronic conditions in New Zealand, Australia, the US and the UK. The inter-health guide includes entry into this category and that goes beyond the simple remote patient monitoring system.
- the mobile clinical assistance (more information on the website)
- the whole area of health care enterprise with efficient multi-core technologies

This is a vast area to be worked on, we're working with partners and coalitions to offer technology, to see how technology in various areas can help to solve what is not possible without that technology today.

MARIO PO', Executive Director, Azienda ULSS n 8 Asolo, Italy ; & PAOLO BARICHELLO, ICT Manager, Azienda ULSS Asolo, Italy, delivered with great enthusiasm a very interesting presentation on

Advices in the Road-Map of eHealth Projects

Hospitals are complicated organisations. Thanks to our experience in the creation of digital health care systems in our two hospitals, we can suggest some basic advice for this type of project.

Digital technology is not always a way to save costs in a hospital's budget. In fact digital innovation effects many organisational variables: culture, professional practice, rules, network. So there are some important difficulties in our organisation in achieving savings in the short and medium term. But in the medium to long term, technological changes and the plan of investments changes too. There are many examples of this fact. Technology has no need to apologise because it gives enormous virtual benefits to patients and operators.

The body is an integrated system of organs, physiology and emotions. Many cases of malpractice in health care are connected to the inability of recognising the patient's clinical reality as an integrated system. ICT in health care has to look, like nature, at the whole integrated system – clinical and non-clinical. Interactions in the operational flow must be avoided, like nature. The projects and their application still have to be worked on but the benefits are very important for the results and opportunities. In clinical activity the subject is always the patient, a person. The solution therefore must be integration.

What can maximise opportunities through geo-medical integration? In fact, the patient is a citizen, the benefits of the integration of the ICT system are very important if we connect many hospitals in the city, region or nation. For example in emergency situations, the possibility of having the clinical results produced at different times by different technologies in different hospitals. Is it better to continue investing and working for laboratory software in each hospital or, on the contrary, is it better to have a system at regional level? The way of planning eHealth has to be changed. Technology and its integration in different clinical areas and different hospitals is not enough. Web 2.0 is not an instrument of therapeutic and diagnostic co-management. The patient becomes more autonomous about the information of their clinical situation, so many old ICT solutions have been replaced completely but only part of these solutions can be changed, where the patient is already the reason for the project.

In ICT health care, there are various variables such as numerous areas of expertise and external connection with the context that is different from the main one and so it is very difficult to identify responsibilities and competence areas. In this complex context, it is simple to blame technology for gaps, delays or mismatches, hiding real problems of internal organisation. So it is very important to create a close relationship between technology and organisation to achieve success. It is the organisation that defines rules for technology.

In an ICT health care project it is important to fulfil two main functions – the first one is relative to benefits for clinical and diagnostic treatment. The second one is relative to sharing clinical information with the patient as much as possible. For example, it is unthinkable that a large clinical database not be shared with a patient in online services. In our health care unit website there are several digital-clinical online services, one of which you have seen an example of.

In the ICT health care process it is necessary that all members follow the same criteria. Even if only one member does not follow the possible stage, for example of meeting data input into the system, the system gives the impression of an unstable system without continuity and so credibility is lost. Very often in ICT health care projects, stakeholders raise issues on subjects that on first impact seem of fundamental importance and stop implementation of the project. Then we realise at the second stage of the project that these subjects are not fundamental. So it is important to use a fast-enrolling policy instead of a slow policy. And two rules must be followed. One is that if the first attempt fails, try and try again but within a time frame. Another one is that we have to reach positive results in a few days.

PHILIPPE SCHEIMANN, CEO, Ayala Alternative Organizational Consulting, Israel; **Founder ComparSante.fr,** France, outlined with great clarity and skill

eHealth 2.0 Price Transparency Solution

The situation in France is that there are more and more drugs that are not reimbursed, drugs with prescriptions. For example treatment for a menopausal woman can cost between €26 and €50 at the pharmacy. In France, pharmacies and doctors are not allowed to advertise or sell online and the health budget is limited. There is no way to find information about the price except by word of mouth.

The situation in France is connected to the article with the Web 2.0 solution as this presentation is going to show.

There are two questions that need to be asked in the context of the relationships between patients and health care professionals: how much do I trust my health care professional and how much complexity is there in the service? This is not about the quality of the doctors – what must be focused on is prices - prices are hard facts. Take the lowest part of the diagram, there is low trust and low or high complexity. The Americans have found that a solution for the low and low is the minute clinic. You go to Walmart – you see the doctor with a headache, you get a prescription and go to the pharmacy where you get the drugs on the spot.

In terms of sustainability, we want to take advantage of the public's knowledge. On the other hand, the 'word of mouth' must be systematically developed. The system is based on user-generated content. People will insert prices themselves. If people ask for the price in the pharmacy, they add them to the database and in the future people will be able to find this, even on their mobile phones. We're switching from patient 1.0 to patient 2.0 – from passive to active.

What is the business model for this – what is the added value? The public gets added value health care insurance, instead of paying out for drugs there is information about getting cheaper drugs. It is a system of eco-systems as seen in previous presentations today.

The website is up and running, with popular medicines and a range of prices, minimum and maximum at a national and regional level. This was created with the help of medical and marketing specialists. So you can see the name of the drug and the price range, and there can be a range of 100% - not with generics but with the exact same drugs sold in different places.

In order to achieve this system, we need to reach a critical mass with active contributors, which is expensive. There is an innovative solution for the credibility of the information generated by users. Then there is the problem of creating an eHealth 2.0 Community with the issues of trust, anonymity and confidentiality. In the US, MDs invest up to 20% in advertising. ComparSante.fr wants to encourage Web 2.0 rather than commercial ads.

MICHÈLE THONNET, Official Representative e-Health France, Responsible for European and International Partnerships and Relations, Ministry of Health, France, delivered a very clear and attention-grabbing overview on EU cooperation in health:

eHealth & Health Challenges & Expectations

Why ICT as an enabler in health? What is happening in EU level cooperation, as health is a national prerogative although we are working to wards wider cooperation. How to make things happen with project action and governance issues that have been raised.

Reforming the health system is a necessity, as other presentations have shown. And it is not just for governments and citizens but for all stakeholders. People, products and services need to be connected. The role of the health care authority is political, legal, organisational, educational. We will look at some incentives that could make a difference.

ICT is only an enabler, a tool for transforming health care. The main reasons for using ICT are shown. One of the main things is needing to overcome barriers. One of these barriers is that ICT is a tool to re-balance the respective roles of each stakeholder not only patients and health care professionals but all. The last point is that ICT is not a place of non-right, individuals need to be protected and confer the status of information delivered.

Everyone has a lot of expectations regarding ICT: Facilitating access, continuity of HC (mobility); Improving quality of care, allowing real HC equity; Enhancing coordination, continuity of care security & safety; Facilitating collaboration between HCP, within/between HCPO; Improving home care & adapted delivery services at PoC; Organising mutualisation & internal standards usage; Facilitating research, L S experimentation & deployment; Decreasing the number of doubloning exam.; Mastering costs through innovative model(s).

Michèle Thonnet does not agree with all the previous presentations – the costs cannot be made less for the time being, one of the most important parts is only to be able to master the costs not to reduce them. Mastering the costs would be an important progression.

ICT may be the tip of the technological iceberg. As mentioned in other presentations, changing the culture and cooperation are important. So ICT is a necessary condition but not a sufficient one, especially in the world where the expectations of the citizen and the patient are really the most important thing. In general health care is a little behind in a world where e-services are part of our daily life. There are some exceptions but this is not the case for all people.

How are the next steps to be managed? We need to overcome the "lateness" of health regarding ICT and some kind of return of investment needs to be set up but this is difficult because the specific added value is very difficult to isolate and the winners are not always the ones making the most effort. A long term view is necessary.

Short sustainable outcomes could be part of the solution, we need to build on reusable building blocks. We are part of Europe and need to cooperate because the problems and challenges are the same even if the systems are very different. Legislation and regulatory issues are also different so it's not easy but close collaboration will help. Much work has already been done at a legal level, for example EU Comm (2008-11) on telemedicine and a proposal EU directive on patients rights in cross-boarder HC (art. 14). This is very important because health is a national prerogative but nevertheless cooperation is a key issue.

To make progress a working group has been set up as has CIP (Competitiveness and Innovation Programme), which launched some large-scale pilot projects including epSOS : European patient Smart Open Services. There are some very important features: it's the first time that at EU level the ministries of health of 12 countries have signed a contract to work together, there are 15 habilited competence centres, over 33 industry firms (open consortium) and all the stakeholders' liaison is at the centre of this. This can deliver particular eHealth services, being able to have a summary of patients' electronic health records all over Europe and secondly being able to reuse e-prescriptions or having e-dispensation in another country. One of the interesting features is to be able to use and reuse internationally standards in being able to anticipate negative consequences of this new system for people that are running legacy systems.

In terms of e-security and e-identification, other projects are being worked on, in order to identify not only the citizen but also the patient. You also have to identify the health care professionals and the health care organisations. The most important feature to bear in mind is trust, because security is part of it but trust is more important. Unfortunately there is not time to go into detail on this issue. But the added value of this clause of cooperation is also only if all the stakeholders' expectations are met. Citizens' expectations are not the same as those of patients. You don't have the same attitude towards security and trust when you are well, especially when it comes to the confidentiality issue. The health care professional also has a different point of view on that and so on – insurance and industry partners too.

The potential success factors are outlined below:

The second – increasing legal certainty, is not to say that there aren't enough laws, it's just to understand in the same way – it has already been raised in the context of the article 29 committee. A third point, brought up by Judith Carr, is key human leadership and the fourth is to design a basket of incentives. There is not time to detail this, but it's not about giving money to any health care professional, it's better to say there could be some kind of compensation reward if you agree and you have a certain level of quality and performance and not to give incentives for attaining only a certain volume. This kind of incentive needs to be used correctly.

If we want eHealth to be a good enabler for health, we need active collaboration at EU Level and because of that it is a political challenge as each country has different health care systems and different legislation and regulation. Over the last 10 days we have agreed on a draft to have a proposal at the next European consult on health in December 2009 to propose some sort of eHealth conclusion, a binding commitment of the ministry of health of all European countries in order to agree to a governance project and to mandate stakeholders organisation, to propose vision and action on that.

MARY TOVŠAK PLETERSKI, Principal Adviser to the Director General, DG INFSO & Media, European Commission, provided a most stimulating, brilliant and well received presentation of what the European Commission is doing in the field of eHealth.

Innovation in eHealth & Sustainability

The challenges and the relevance of eHealth in sustainability have been outlined already. ICT's biggest challenge is to bring medical research to a level where we can as individuals manage the risk and our health condition through partnerships. This is the main message and there are two main areas: preventative medicine and predictive medicine, which we still have a lot of potential to use.

There is a distinction between the process of invention and the process of innovation – the European commission is active in both of these spheres and these two spheres are governed by different determinants. Invention is the process of investing resources to create new ideas. This means that we invest in education, research centres and so on, to get new ideas to be put into practise. What the European commission does is to have the Seven Framework Programme, which is used for eHealth purposes. Three important elements of the seven programme are: ICT for predictive medicine, research related to personal health systems and ICT for better patient safety. Roughly €163million euros is spent on the 2009-2010 programme in the eHealth area. Innovation is the process of converting ideas to activities to generate social benefits or market value. We talk about generating higher market value, or more importantly for the field of health, creating additional social value such as improved safety for the patient. In this sphere different determinants must be keep in mind when thinking about the process of innovation.

The success factors are: Policy and political will; Financing/business models; Market and industry readiness; Legal framework and trust; User acceptance.

Policy and political will has already been mentioned by Michèle. Lets look at the other factors in terms of what the European Commission does. Policy documents and political initiatives – there is an eHealth action plan, one of the framework policy documents. Lead market initiative - the Commission has created an action plan to accelerate the market development and the eHealth market is one of the six market areas considered to be a lead market within the purposes of Commission activities. There are three messages related to lead markets – what is done is investing in areas of market fragmentation and lack of interoperability. Interoperability is specifically relevant in eHealth. Pilots, benchmarking and standard certificates are needed. The next element in the lead market initiative is the attempt to address the lack of level clarity and the lack of sustainable business models and the third is the procurement solutions.

There is the recommendation for cross-border interoperability of electronic health care record systems. We have seen how important this is in the other presentations. It sounds very basic but it's difficult for everything to be connected in practise.

The Commission published communication on telemedicine, which defines the Commission policy road-map to deploy telemedicine services. These are the most important policy documents to be flagged up.

Then there is eHealth governance and especially the group of state secretaries that was formed last February and which has very strong support from the Commission. This is an

important step forward because it is the political commitment of the member states expressing the readiness to cooperate in wider deployment of eHealth solutions.

Briefly on funding – competitiveness and innovation programmes have already been mentioned. Here we are dealing with projects that implement these solutions. It's not research we need anymore but validation of these solutions on the market. As for the structure of funds it is now also possible to use structural funds in health care and in eHealth. The importance of interoperability has already been mentioned, the main social value of interoperability is shared care and safer and better continuity of care. The main market value of interoperability is large market, low price, transparency and better quality. In terms of legal framework, the Commission is preparing a staff working paper on relevant EU regulations and directives that provide a good framework for countries to enable eHealth and telemedicine services.

The European Commission was one of the first funding agencies that underlined the interdisciplinary approach in the field of eHealth, that is the cooperation between engineers, doctors, users and computer scientists. Here is an example of innovation in how health care is delivered with remote monitoring and teleconsultations.

There is plenty of evidence of why telemedicine is really useful, is it important to say that the eHealth sector lacks the scale of projects. There are always small scale pilots and it is very difficult to provide evidence to the authorities of what that would mean on a large scale.

Although it is really a repetition of the other presentations we have heard, the real innovation in eHealth is about bringing the three main factors related to health closer: health delivery system – we need to look at the health situation of a patient in a more comprehensive holistic way. There are elements that must be linked to make eHealth more sustainable, ICT has a role to play in all aspects. One example, to finish, is euHeart, where nature is in-built in the decision of the doctor, that's a very important element in the research field. Advances have been made in the virtual physiological human including a virtual model of a heart that can be personalised for each patient. That can give an insight into how a specific drug treatment would work on an individual, or which option would be the best for surgery. This project is still running and the European Community's funding is significant.

To conclude, eHealth obviously matters, it can improve access to health care and boost the quality and effectiveness of services offered. The new frontier for the European Commission is ICT for personalised and predictive health care.

Telecom and Internet Regulatory Challenges and Opportunities

The **chair** and **moderator, ANDREW LIPMAN, Partner and Head of Telecom Group, Bingham McCutchen**, USA, welcomed the panellists by stressing that, as in prior years, the regulatory panel is an extraordinary detailed and comprehensive panel. He made a brilliant introduction to this year's regulatory panel by describing the regulatory panel's evolution through the years:

Initially, the Panel was very voice centric and addressed issues of Competition and Monopolization. Now, competition is largely taken for granted in developed countries. The panel initially was very wire line focused. Increasingly, the panel has migrated to wireless, for both developed and developing countries. The panel also used to focus extensively on issues of interconnection and network unbundling. It would appear that in many developed nations, these issues have largely been addressed. More and more, the focus turns on broadband and the desire by governments and private entities to deploy ubiquitous broadband including in rural and remote areas. The panel also addresses Internet regulatory issues and issues of Internet governance. However, most panellists would keep the Internet relatively free of regulation. Where this issue becomes somewhat controversial is in the area of Network neutrality, an issue discussed by many panellists from multiple countries.

This year's panellists noted repeatedly how fundamental and essential regulatory and policy issues are to the growth of the telecom and Internet industries. Panellists also noted how the subject matter of the panel changes materially year to year.

The panel generally operated on a basis of mutual understanding. There were several topics that were universally accepted by the panellists. The first was the right of Users to uninterrupted network access. The next turned on the right of all users ultimately to have broadband access, but little discussion as to how much such ability would ultimately cost. There was also general agreement on the increasingly important right of privacy, as this issue took many forms, including a discussion on behavioural advertising. Another important point of convergence was the general desire to bridge the Digital Divide, although little discussion ensued as to cost or timeframe. The panel also touched on video issues and the appropriate regulatory framework. These discussions were held against the regulatory backdrop of a very severe overall economy. It was generally agreed that the telecom and Internet sector held up relatively well under the economy, but carriers serving residential users likely had the most negative impact.

The first speaker of the session, **CHRISTOPHER J. BOYER, Public Policy Group, AT&T,** USA, [www.att.com], led off the panel and delivered an excellent and stimulating discussion of the growing consumer demand for broadband, using the US as a model:

ICT and the Future of the Internet:
Regulatory Challenges –Network Neutrality

Consumer demand for anytime, anywhere access to content from any device and rapidly changing technology is driving a series of trends: Broadband is becoming ubiquitous (wired or mobile). There is a shift from mobile voice to data. Mobile broadband speeds are growing (HSPA/HSPA 7.2/LTE) and services are migrating to IP. Cloud computing or infrastructure/ platform/ software as a service continues to emerge. Web services and social networks continue to grow. Networks are becoming personal with presence and location management enabling a range of new applications. At the same time wireless and wireline are converging. Sensory networks (RFID) will be commonplace. Cyber security, identity management and privacy rising in importance. And last but not least, an increasing demand for "open" application development platforms.

All this raised a series of challenges for policymakers: whether it is the issue of broadband adoption and deployment, Network Neutrality, privacy, online safety, information security, Internet governance, mobility regulation etc. All these aspects are becoming more and more important as the ICT industry changes.

The network is a critical enabler. Services that are provided over IP as a layered architecture: Applications enabling anywhere, anytime access, across multiple platforms, mobile, fixed, over a range of devices. But the key that supports those is the infrastructure itself – whether it is the application infrastructure supporting web and other applications via content delivery networks, hosting and security services; whether it is network intelligence delivering advanced routing capabilities that optimise the availability and performance; whether it is the physical network itself supporting a wide range access technologies (such as FTTH and other physical network architectures) and devices; fixed, mobile etc. Broadband infrastructure and smart networks are required for ICT to reach its full potential in solving social policy issues and meeting consumer demands.

Network providers have to be able to manage their networks to ensure economical and efficient use of bandwidth and provide affordable broadband services. The Internet as initially conceived not designed to carry the volume or diversity of content, applications and services provided today. Network management enables network operators to adjust to congestion and strike the balance between affordability and quality. This provides means to adapt to demand insulating the broadest possible base of customers from experiencing adverse impacts of congestion. But it can also serve as application enabler in the event of congestion resulting in delay, jitter and packet loss. Network management is a critical tool for network service providers to manage their networks and continue to provide services.

Network Neutrality as it is discussed today would have a major impact on the ability to manage the networks. Some of the principles that are discussed right now: First of all, no blocking, degradation, prioritisation or preference for some packets over others. All packets should be given identical "best-effort" treatment. Any need for improved service quality should be met only through increased bandwidth. Network Neutrality principle as it is discussed today would also prohibit network management unless its sole purpose is to protect network security or to relieve temporary network congestion. It must be targeted to

impact only the users or applications creating the congestion and should impact all of these identically. The regulatory policy should prefer edge-provided services over services supported from within the network. Moreover, there would be no upstream charges for packet delivery or any fees for improved performance and a high degree of transparency of network management practices.

What will be the impact of the reported Net neutrality provisions? First of all, "Net neutrality" rules as reported have the potential to undermine the ability to manage networks: All packets given identical "best-effort" treatment. Any need for improved service quality should be met only through increased bandwidth. Network management only permitted to protect network security or relieve temporary congestion. For a network management practice to be considered reasonable and permissible, it must be surgically "perfect" – which, from a technical perspective, is an objective which is impossible to meet. Also, the discussed Net neutrality rules limit ability for broadband operators to offer differentiated services and end users will bear all costs of these "open" minimally-managed networks.

Consumers want the Internet to do more for them: enabling anytime, anywhere access and improved network security and reliability. Moreover policymakers are looking to ICT to solve a myriad of social challenges including e-government, sustainability etc.. Network neutrality regulations could undermine these goals and the ability to manage networks efficiently would be impeded. The cost of using a fat dumb network for services would be prohibitive. Moreover, security and reliability of the Internet would be harder to maintain. Policymakers need to ensure that a climate favourable to investment exists for infrastructure providers to invest in smart networks enabling the next generation of ICT services.

The **Q&A** referred to the question if the Government did decide to have a light handed regulation for Network neutrality, what would AT&T recommend as a potential enforcement in the advent that there was some anti-competitive behaviour regarding an Internet service provider. In his answer, Christopher J. Boyer explained that the FCC has their current set of Internet principles and AT&T supports the principles as they exist today. The FCC has shown that that process works in terms of the issue that occurred a couple years ago regarding ComCast and BitTorrent.

BOGDAN DOSPINESCU, Head of Tariff Regulation and Universal Service, National Authority for Management and Regulation in Communications of Romania - ANCOM, Romania, provided a most interesting and comprehensive overview of the Universal Service Directive and the state of broadband deployment in Romania:

A Wide Digital Divide and its Challenges – Addressing the Lack of Broadband Access in the Rural Areas of Romania

In the context of the EU Framework Review, Recital 8 of the Universal Service Directive has been amended to offer more flexibility to Member States seeking to expand the minimum guaranteed services to include Broadband: Limitation of the universal service requirement to a single narrowband network connection has been removed, same as the references to the data rate of 56 KBit/s. Data rates which are sufficient to permit functional Internet access will continue to be defined by the Member States "taking due account of specific circumstances in national markets, for instance the prevailing bandwidth used by the majority of subscribers in that Member State or technological feasibility". Flexibility is required to allow Member States to take measures where necessary to ensure that a data connection can offer

functional internet access, “provided that these measures seek to minimize market distortion”. Reference to alternative financing of infrastructure rollout has been introduced:“ Alternative financing of underlying network infrastructure, involving Community funding or national measures in accordance with Community law, may also be implemented.”

Romania has an overall fixed Broadband penetration rate of 11.7%. But there is a big difference between urban areas (with a penetration of 18.6%) and rural areas (with a Broadband penetration of only 3.1%). There is a wide digital divide, since 45% of the 21 million Romanians live in rural areas. Fixed Broadband networks cover only 58.8% of the rural population. Less than 25% of the rural population is covered by at least 2 broadband networks.

Romania has one of the lowest penetration rates in the EU 27. The average penetration rate in the EU 27 is 22.9%. Romania’s penetration rate increases quite fast in urban areas but very slow in rural areas.
The low rate of Broadband penetration in Romania, and in particular in the rural areas, is not an effect of a lack of competition in the market, but results from a combination of a low PC penetration rate (35% versus 57% EU 27), an average income per capita which is among the lowest in the EU and the late launch of DSL services by the incumbent. Another particularity of the Romanian market is that Romania has the highest level of infrastructure-based competition and one of the lowest market share of the incumbent in the EU. Broadband prices for speeds up to 3Mbps are among the lowest in the EU.

One step that the country is taking to expand broadband in rural areas is the adoption of self sustaining TeleCenters. They provide the whole range of services that are generally provided through individual access. The TeleCenters should also stimulate market supply and demand, educating consumers to use the electronic communications services. Their implementation takes utmost account of the principles of least market distortion, technological neutrality, transparency, non-discrimination and proportionality. TeleCenters are installed in 633 villages with limited or no connectivity. 7 universal service providers using different technologies (fixed, mobile, satellite etc.) have been designated.

Regarding reflections of the future of broadband in Romania, three specific measures to address the broadband gap have been identified: The first one is the implementation of an appropriate Universal Service Policy by introducing broadband in the scope of the Universal Service, designating one or more Universal Service Providers and continuing to observe the principles of efficiency, non-discrimination, technological neutrality and least market distortion. The second one is to use spectrum policies to address undersupply and competition problems. Spectrum policies should be used to increase connectivity in rural areas and to boost competition. Both measures should be completed by complementary public policies, such as the Governmental Broadband Strategy 2009-2015, The Knowledge Based Economy Project 2006-2010 and projects of local authorities realized within the framework of EU structural funds.

During the following **Q&A** the question raised whether the underserved rural areas are expected to be served predominately by wireless providers as opposed to wireline providers. Bogdan Dospinescu answered that the wireless technologies are becoming more and more interesting for the rural areas of Romania and mobile operators are showing an interest in rural areas due to increasing revenues and profit. Up to now WIMAX is not present in Romania’s rural areas but mobile Broadband will surely be the solution for rural areas in the medium term.

THOMAS HART, EU-China Media and Communications Policy Advisor, Hart-Consult Associate, GOPA Consultants, China, gave a detailed and passionate discussion on the regulatory challenges of virtual worlds:

From "Watching TV" to "Using AV": Converging Services – Converging Regulations?

Internet-TV - what is it? There are these two issues of publicly available services on a public platform such as an HTML platform in the WWW as opposed to things like IPTV audiovisual transmissions happening in a closed environment, in private networks, often requiring subscription. The content transmitted could be occasionally the same – transmitted through the various available platforms. It can be broadcasted terrestrial or through satellite, it can be made available in a DSL network through an IPTV service, offered as a streamed content, or in P2P platforms for individual download in distributed networks.

The usage situation may be different, which causes justification for a different regulatory approache. The theory of regulatory intervention in media markets says, that in a passive usage situation such as being exposed to broadcast television, people will be more vulnerable to fall victim to the immersive powers of broadcast television and less able to escape from whatever kind of influence is emanating from this kind of content. Due to this danger, in particular for the development of minors, TV needs to be stronger regulated in an environment where the broadcaster decides on when and in what form it happens as in on-demand situation that is usually the case in the Internet.

The EC has reacted to that by revising the TV without Frontiers Directive into an Audiovisual Media without Frontiers Directive which makes the distinction between linear and non-linear services. However, when discussing and introducing the approach, one easily realises that there are still loopholes. It still means differentiating between identical content on non-identical platforms. The whole idea of being technology neutral, of attaching regulatory intervention to a certain content, assessing the content and its impact on for example psychological approach to use development and the reaction to minors on media impact is not yet satisfactorily resolved.

What is needed, especially in a cross-national environment, because the content will be increasingly available wherever people are, is a trans-national solution to virtual world regulation.

Either regulatory solutions that are dedicated to the individual service – and then one needs to be comprehensive for every single service layer (P2P, streaming services, on-demand TV, pay TV, etc) – or one has to find a comprehensive solution that is really technology neutral and tries to apply the same form of for example use protection to all kinds of platforms. It might be worth to work on the latter solution, even if it proves to be extremely difficult.

The **Q&A** addressed the question of whether there are any policymakers, governments, self-regulatory bodies or consumer associations actively addressing the various challenges of regulatory harmonisation in this specific area? In his answer Thomas Hart stressed that they do more in non-conventional media, such as virtual environments, Second Life or online gaming – things that have not existed a couple of years ago and where one can immediately recognize the newness of the regulatory challenge.

BONNIE PENG, Chairperson of the National Communications Commission - NCC, Taiwan, brilliantly and with great incentive spoke on the digital divide in rural areas and what Taiwan was doing to close it:

Bridging the Digital Divide in Rural Taiwan

The percentage of local telephone subscribers is quite stable between 2001 (57.3%) and 2008 (56.8%). The percentage of mobile subscribers in Taiwan grew very fast between 2001 (97.2%) (and 2008 (110.3%), which means that some persons might have more than one mobile phone. The percentage of Internet users grew from 34.9% in 2001 to 65.8% in 2008. The fixed broadband household penetration rate grew extremely fast from 17.0% in 2001 to 65.6% in 2008. The cable penetration rate is actually more than 80% in Taiwan.

Corresponding to a 2008 survey on global ICT industry competitiveness, published by the Economist Intelligence Unit, Taiwan is ranked number 2 worldwide in terms of manufacturing industry. Taiwan is ranked number 4 in terms of Broadband infrastructure and usage (2008 global user penetration rates, released by FTTH Council), and number 5 in terms of household Broadband penetration (81%).

The Taiwanese Government had launched a National InfoCom Development Plan(NIDP). The evolution of the NIDP started with the e-Taiwan programme (2002-2007) focussing on broadband services in the context of e-Government and e-Infrastructure. It was then extended to m-Taiwan (2005-2009) dedicated to mobile applications for Broadband infrastructure and heterogeneous network services. u-Taiwan (2008-2011) was then launched to focus on the development of ubiquitous services in the context of ubiquitous networks and digital convergence. In 2008, i-Taiwan (intelligent ALL-IP networks and application services) has been launched to address the deployment of intelligent services in Taiwan.

i-Taiwan covers the areas of wireless and broadband convergence, cultural and creative industries, superior e-Government, demand driven applications, equal digital opportunities, and manpower cultivation. The total funding of i-Taiwan in 2009 is about USD 5.2 billions.

There is a virtual Universal Service Fund dedicated to universal telecom services. Telecom operators whose annual turnover exceeds USD 3 million must share the deficit of universal service providers by a proportionate ratio. The average size of the Universal Service Fund is about USD 27 millions. There is also a fund for CATV, with an average size of about USD 10 millions.

There is a strong commitment to extend broadband to even the most remote and rural village. In 2007, NCC promoted the project “Broadband for Villages” with the Universal Service Fund and designated private operators to participate. Since 2008, NCC has been extending still further into remote areas with its project “Broadband for Tribes & Neighbourhood”. Approximately 715 villages and 730 tribes in rural areas in Taiwan have been reached via these projects.

In order to reduce the digital divide, Taiwan deploys Digital Opportunity Centers (DOCs). Taiwan initiated the ADOC program with self-funding at the 11th APEC in 2003. 27 ADOC centers were established in 7 APEC economies (Chile, Indonesia, Papua New Guinea, Peru, the Philippines, Vietnam and Thailand) with the aim of bridging the digital divide within the APEC community. From 2005-2009, 168 DOCs, providing PCs and Internet access, were established in rural areas across Taiwan. Sponsorship was provided by private enterprises.

The challenge remains to provide greater broadband at lower prices and the government is collaborating with the private sector to realize that result in rural Taiwan.

The **Q&A** referred to the process used to designate private operators to provide service to certain villages based on the Universal Service Fund. Bonnie Peng explained thet they are 28 telecom operators participating in this programme. The selection depends on how much money they made in each year. It is a virtual fund and the participating operators share the share the deficit of universal service providers by a proportionate ratio.

JACQUELYNN RUFF, Vice President of International Public Policy & Regulatory Affairs, Verizon, USA, [www.verizon.com], presented with conviction and great competence and clarity Verizon's views on the

Broadband Cycle of Innovation

The way people think of regulations in 2009 is different from the one even one year ago. Thinking about the right framework for regulation – or thinking about the whole picture and many different types of considerations – seems to be very appropriate. An example is broadband with the three pieces investment and deployment on one hand, adoption on the other hand, and innovation and demand as a third piece. These are three very interrelated pieces which include sectorial regulation, but which go far beyond sectorial regulation. The U.S. Government is doing a national Broadband plan that encompasses all these pieces.

In the context of encouraging investment and deployment, competition between different platforms is an important factor. It has been important on the U.S. market between cable and DSL. Another example is Taiwan, where the policymakers have seen it valuable to encourage both options the cable TV and DSL. As a result, Taiwan has a very high household broadband penetration.

The second big category is the use of wireless. Wireless probably includes a lot of spectrum policy, which is not the type of regulation that people traditionally would have thought about.

Tax incentives are also an important means to stimulate investment. An example is Japan, where the tax incentives around broadband have been extremely helpful.

Government funding should be a supplement, not a substitute. Governments have to look on areas that are really underserved and carefully target that. Furthermore it is important to avoid regulation that jeopardizes the dynamic Internet.

Net neutrality means many different things to many different people. One way to define it, is to say that the U.S. has Net neutrality now. There are principles of consumers being able to do what they want on the Internet and the FCC has the ability to address problems. Another more extreme version of Net neutrality would be to have laws and rules that would prohibit differentiated services.

Verizon champions the consumer driven open Internet and the FCC's current four principals. There are generally few current problems with compliance of these principals – however too much regulation should risk stifling innovation, jobs and investment, especially in the wireless space. Verizon proposes a case-by-case government action if anti-competitive problems arise.

There are some very interesting innovative initiatives to increase broadband adoption: For instance, to increase computer access and literacy, Korea provides training for key demographic groups. Relevant content has been promoted in Africa by applications such as online banking. Colombia uses VoIP as demand driver for an increased use of IP-based services. Japan is an example for high quality differentiated services, such as in-home remote medical support.

In order to reach a pro-growth regulatory approach, it is important to learn from each other but at the same time one has to keep in mind that there is not one size fits all. Regulatory regimes have to be fact-based and reflect the markets to which they are applied. Government should not pick winners and losers. And finally, there is a need for active and inclusive stakeholder participation.

The following **Q&A** referred to the question why Net neutrality rules could be potentially more dangerous in the wireless sector than in the wireline sector. Jacquelynn Ruff stressed that the concern is that if there are very strict rules operators can run into problems due to spectrum limitations. Moreover it could bother innovation around wireless broadband. Wireless broadband is just taking off and there is a need to have flexibility and business models to foster innovation in this field.

GÉRALD SANTUCCI, Head of Unit "Networked Enterprise and RFID", DG INFSO & Media, European Commission, provided eloquently a most interesting insight into the Commission's perspective of

Internet Governance

The history of the Internet has always been an unending journey. It all started at the end of the 1960s. Important milestones have been the creation of the Domain Name System in 1984, the World Wide Web in the 1990s, the first browser in 1993, the W3C in the 1994, ICANN in 1998, WSIS in 2003 and the IGF in 2005. All this events have taken part of what has become the issue for the governance of the Internet.

The Internet of Things is something relatively new. It has different names all around the world and is perhaps the third stage of the evolution of the Internet. The first stage was to link up the computers, the second stage has been to link up documents and pages and now the intention is to link up things. What these things are may be subject to different interpretations. The easiest way to look at it would be to connect the machines to the Internet (end-to-end / machine-to-machine).

In order to connect the things, there is a need for a new architecture, which will include edge networks of RFID tags and sensors, access networking, and middleware to provide ubiquitous services and applications. There are already a lot of applications that are starting today and that can be considered as the embryo of what will be the applications of the Internet of Things.

The Commission started showing interest in the Internet of Things in 2005. The EC wondered whether and to what extent there is a need for a governance of this future Internet of Things. After two years of public consultations a communication has been adopted in June 2009. It provides in its Action 1 the need to conduct discussions and decisions on defining a set of principles underlying the governance of the Internet of Things.

How to define a governance of the Internet of Things? It is easier to set up a proper governance from the beginning rather than to try at a later stage to retrospectively reengineer the structures of a widely deployed system. This is an important lesson learned from the DNS.

The EU has to rely on a number of legal roots: The first one is the EU Treaty: It says that subsidiarity has to be promoted, which means that at no point things have to be done at a higher level if they can be done with the same or even better quality at a local level. Therefore the problems have to be addressed at an adequate level – and consequently the local authorities need then to be empowered. The treaty also says that there should be free movement of people, goods, capital, services and knowledge – and the Internet of Things is a lot about the circulation of knowledge. The treaty also speaks about free and undistorted competition, which means no abuse of a dominant position, no cartels and the implementation of corresponding laws. Furthermore, the EU looks at the charter of fundamental rights. The fundamental rights in this regard are the right to privacy and the right to the protection of personal data, which is the right to be informed – but also the right of being disconnected from the Internet.
This is what I call the "right to the silence of the chips

The EU also looks on related events, such as the Tunis Agenda, the work with ICANN and the lessons learned from the DNS. One of the lessons learned is that in order to be more efficient and effective, Governance of the Internet of Things has to be carried out in a partnership between the public and the private sector. In order to do this, a multi-stakeholder approach has to be implemented. Such approach is important to avoid islands of governance which would hinder the full and long-term deployment of the Internet of Things. It is desirable in order to avoid the initial “mistakes” made with the DNS and it is possible because the degree of awareness today is very high in this respect.

There are a number of principles the EC would like to promote: Integrity of data, the security and availability of the networks, confidence and the anonymity of the data. Moreover, every action carried out to define a governance of the Internet of Things should be done under the umbrella of a sustained international dialogue. The EU started this dialogue by funding the project CASAGRAS. The project just ended in London, where the representatives of the U.S., Japan, China, South Korea and the EU came together to agree on certain principles.

The next steps in Europe will be to confirm a commitment to an open Internet of Things with a shared, neutral and independent governance. The EC will also analyse the lessons learned from the current experience of GS1 France and Orange, which is the first experience of a decentralised management of the root server of RFID. The EC will launch an international public debate between private and public stakeholders on the governance of the Internet of Things. Moreover, existing and potential alternatives regarding the architecture and coding of the Internet of Things will be assessed. The EC will also discuss with Standardisation Bodies to work out standards.

The **Q&A** referred to the question about the concrete steps that the EU will take in order to implement the governance of the Internet of Things. Gérald Santucci explained that one year ago, the principle of a decentralised governance of the Internet of Things was decided based on the conclusions of the council of the EU on the Internet and the Internet of Things. Therefore the discussions in the EU are going on. Once the new Commission will be in place at the beginning of next year, the EC will set up an international expert group which will support to define the requirements and appropriate governance of the Internet of Things.

This expert group will include all stakeholders from the private and the public sector. First conclusions of the group are expected by mid-2011.

THERESA SWINEHART, Vice President Global and Strategic Partnerships, Internet Corporation for Assigned Names and Numbers – ICANN, USA, summarised with great inspiration and clarity ICANN's role in the context of

Telecom and Internet Regulatory Challenges and Opportunities – Names, Numbers, Internet Governance

Internet is still evolving and so is its governance. The number of users as well as the number of applications and the amount of traffic still increasing rapidly and despite the economic downturn there are no signs that this will change.

ICANN actually deals with names and numbers, which corresponds to the address of the outside of an envelope. It does not deal with content, but rather the coordination of the unique identifier system – the Internet domain names. It enables any entity and any community to communicate over the Internet and to get where it is supposed to get.

Internationalised Domain Names (IDNs) is one of the four key areas of ICANN's activities. It concerns the non-roman character sets for the top level of the domain names tree. There are two processes with regards to this: One is going to be for the country code top-level domains; the other, which is going to take a bit longer is the generic top-level domains (.net, .org, etc.). All countries and regions interested have been participating in the debate, including Russia, China, and the Arab region. IDNs represent an important dimension to contributing to a further multilingual Internet.

The introduction of new generic top-level domains (gTLDs) is another area ICANN is currently dealing with. Introducing gTLDs is not that simple. There are many issues that come up in order to ensure that there is choice for end users and opportunity for businesses, but there is also other issues like trademark protection, demand and economic impact, malicious conduct and root zone scaling.

The third area that ICANN is watching very carefully is the IPv4 address space depletion and the IPv6 transition. ICANN expects to run out of IPv4 address space mid 2011. There is a rapid increase and intake in IPv6 address space and this has an implication new applications and new technologies, including discussions around the Internet of Things. 300% increase in IPv6 routing entries in the past two years ICANN supports efforts around the world leading to the smooth transition to IPv6.

The fourth area ICANN is dealing with concerns security, stability and resiliency. The secure, stable and resilient operation of the Internet's unique identifier systems is a core part of ICANN's mission. There are plans to improve the authentication of communications with TLD managers and support implementation of DNS Security Extensions (DNSSec). Furthermore, ICANN collaborates with the security community to effectively respond to malicious abuses of the DNS, including ccTLD operators as well as with governments across the globe in order to provide a technical perspective in relation to security of DNS.

As regards Internet Governance, there are numerous different models, impacted by economic growth, social engagement, and the digital divide. It is really a balance between government versus private sector, or between private sector versus private sector and

consumer interests. There are a few institutional models that have started to present themselves: One is the IGF Platform, which represents a very good platform for discussions, and which has its upcoming meeting on 5-18 November 2009 in Sharm el Sheikh with the following agenda themes: managing critical Internet resources, security, openness and privacy, access and diversity, Internet governance in the light of WSIS principles, the continuation of the forum, the impact of Social Networks.

ICANN itself has had a shift in its Internet Governance model by moving from a series of Memorandums of Understanding with the U.S. Department of Commerce to what is now referred to as a Prominent Relationship and Affirmation of Commitments. This concludes the MOU processes and institutionalizes the private sector responsibility for the DNS coordination. There is no control by one entity. There is also clear responsibilities with regards to transparence and accountability and ICANN's mission and mandate that are captured in a series of reviews that the organisation has to undertake. Those reviews reflect accountability, transparency and the interests of global Internet users; preserving security, stability and resiliency; and promoting competition, consumer trust and consumer choice.

This is an evolution of the model for ICANN and it sets an interesting example for other entities and other interest areas with regards to governance models.

During the **Q&A** the question about ICANN's policy in terms the increasing number of applicants and in terms of gTLDs came up. How ICANN resolves this in terms of multiple competing applicants and copyright issues and alike? In her answer Theresa Swinehart referred to the 3rd version of the Applicant Guide Book which is part of the process of engaging with the community and discussing exactly those issues. That Guide Book identifies the process and proposes approaches towards conflicting applications and how to manage those. There are still four areas that are somewhere outstanding and that need to be resolved and those include Intellectual Property issues regarding domain names and finding a solution in that area. ICANN is still in the process in completing how the final process will look on the application area.

MA YUAN, Division Director of the Institute of Economy and Policy of the China Academy of Telecommunications Research - CATR, Ministry of Information Industry, China, delivered brilliantly a detailed presentation discussing a multi-national overview of the issues facing network neutrality in China.

Net Neutrality and the Latest Trend in China

During the past years, many bandwidth-consuming Internet applications appeared. To carry large traffic, network operators have to expand their capacity but the ROI is very low. Another important fact is that in this early stage, most network operators adopt flat-rate tariffs to attract subscribers. However, the situation is that few subscribers abuse the policies and use lots of capacity -- which is unfair for the other users. In addition to that, Network operators have to innovate and transform their business models to maintain the dominant status. They are facing the choice of either to just carry Internet traffic or to become an integrated operator.

The discussions about Net neutrality have shown that application providers want equal access, equal transmission and equal fees. Furthermore, application providers also argue against traffic management and unfair behavior. A the same time network providers need to make use of technical and economic tools to improve the quality of their networks.

The rapid growth of traffic leads to discussions on how to balance the ROI of network operators and to ensure fair competition. Network neutrality is not a hot topic in China. Due to the rapid increase of Internet users and websites, network capacity is always in shortage and the speed is low. Network operators have to expand or upgrade their networks and interconnection capacity frequently.

Some experts indicate that Net neutrality will bear some problems but the related Internet companies have little voice. In fact, network operators have constructed a high quality dedicated network to provide various services for customers.

Net neutrality is currently not a hot bottom issue but is being closely observed and studied globally. The conflict is not as obvious as in the U.S. or other developed countries. The limited ability of innovation slows down the introduction of new applications. Moreover, Internet service operators are too “small” to fight against the network operators. Most consumers did not even know the term “Net neutrality”.

Traffic blocking and intercepting is used to reduce resource congestion caused by few users, to ensure a fair use of the network capacity and to block illegal content. Negative effects are that traffic blocking and intercepting may prevent from accessing legal content, decrease the quality of service and lead to unfair competition of some operators. Remedies that government could use to address blocking and other practices could be to require operators to publish blocking measures and their possible results, to set up a complaint system and to punish unfair anti-competition behaviours, as well as to encourage operators to invest in the infrastructure.

Tiered access pricing, can be used to satisfy the different requirements of the users, to increase the operator’s and to guide the rational use of the broadband resources. However, tiered access pricing can increase the cost of the application providers and the discriminatory access may perturb fair competition. It is recommended to allow operators to provide diverse access to meet the demand, to ensure the end-user’s right to choice and to limit and punish abusing behaviors.

Another option is vertical squeeze used to make good use of the full service, to support the transformation of the operators and to encourage investment. However, vertical squeeze could lead to unfair competition, cross subsidy to expel competitors, negatively influence the innovation of the Internet Service Providers and infringe the rights of users. It is therefore recommended to set up a monitoring system and stop the tying behavior of the operators, to allow operators to provide bundled services, to ensure non-discriminatory and fair access, and to protect innovation.

--- ✦✦✦ ---

To conclude the session, the chair and moderator would like to know from the panellists if they are giving their presentation 5 years from now, what would be the biggest change?

Christopher J. Boyer answered that by 2015 a lot of the debates will have shifted away from tall communications providers like AT&T. They will be more about the Internet as a whole. Probably, we will see applications providers and applications themselves that are starting to

take on the role of traditional services. By 2015 there will be more debate about other entities than just companies like AT&T.

Bogdan Dospinescu explained that in 2015, there will be still a gap between urban and rural areas, but it will be much smaller than today.

Thomas Hart expected only very few or even no changes by 2015. Maybe there will be a bit more experience in terms of whether or not there are different audiovisual services to be regulated and maybe people have learned a little bit more about how to integrate all services under one technology neutral roof of regulation.

Bonnie Peng stressed that by 2015 there will be more choices, reasonable prices, better quality, less government intervention and more international collaboration.

Jacquelynn Ruff explained that it is very likely that more and more industry players are following the notion of self-regulation and getting together and demonstrate much more transparency towards the end users. Ms Ruff agreed with the other speakers about the fact that there will be more integrated services blurring up the boundaries among the different players. Moreover, the Internet of Things is a lot of the future.

Gérald Santucci answered that 5 years ago, the Internet of Things was hardly debated. It was just the beginning of the dawn of the development of RFID. In 5 years from now, there is a need for more standards and if these standards are available and also more trust, which will determine the user acceptance, there will also be a need for an international dialogue – not only in words but in acts. All this will impact the speed of the development of the Internet of Things and it will also impact its scope – whether it will be for the supply chains in logistics, distribution and commerce or whether it will address the whole economy and even the society.

Theresa Swinehart expects to see the impact of the implementation of the internationalised domain names and the absorption of IPv6. She also expects the model evolve into a global model as an entire segment of the population strikes coming online and becoming active in Internet governance debates overall and in the ICANN debates with regards to specific areas.

Ma Yuan answered that by 2015 China will surely have implemented rules for regulators to prohibit unfair competition behaviours.

DAY 2 – MORNING – PLENARY SESSION

The session's **chair**, **OLIN WETHINGTON, President Wethington International**, USA, welcomed with great incentive the panellists and introduced the session' topic:

In the context of the global economic downturn, it is interesting to consider the future of the Internet and the opportunities this sector provides for stimulating and shaping the economy. The ICT sector has a major role to play in the recovery that many believe is under way. Internationally the banking sector is now stabilized. The banking sector has bottomed out. Interest rate spreads have declines and bank lending is slowly resuming. However, the real economy in many parts of the world does remain troubled with high unemployment and weak consumer spending. Nonetheless, there are signs that growth is, in fact, returning.

In response to the crisis governments have set up new financing facilities and have taken ownership of many financial assets in many unprecedented ways. Stimulus plans by governments have swelled the budgetary deficits of many countries. Central banks and government have also provided large bailouts to financial institutions which is viewed as systemically important. These steps, in a global sense, have had a positive effect, even though the crisis has not ended.

Looking forward some observations as to the global economy may be relevant.

1) The injection of new money by central banks into the system, although necessary over the past year and a half, does nonetheless create the risk of longer term inflationary pressures and do pose issues concerning the expanding role of government in the economy, particularly in the financial sector, but in others as well. A central policy question for the future is how will central banks restrain inflationary pressures without prematurely hindering growth? Governments must now seek to exit from many of the involvements created as a result of the financial crisis. There is growing popular sentiment in many countries, that government has in many cases been over-reached and that central monetary authorities may have compromised some of their independence and credibility.

2) Considerably attention is now being given to long-term reform of financial regulatory regimes. Governments are looking to determine whether there are lessons to be drawn from the recent financial crisis that suggest regulatory changes that may lessen the possibility of a repeat financial crisis in the future. However, the danger is that the crisis is now receding. Governments and financial regulators will return to their old familiar ways and practices of the past. Reform and cross-border coordination continue to be necessary and we should not let this opportunity pass.

3) The ITC sector will continue to be one of the sources of growth and recently quarterly statements that have been reported indicate that this sector is showing unexpected strength. However, we should recognise that in many countries government stimulus at this point may be disproportionately high with budget deficits to GDP at record levels. In general, industry – in particular in the ICT sector – should not look to additional fiscal stimulus to propel recovery. ICT cannot rely on government capital for technological advance over time. Despite the recent downturn, in general, private capital and innovation are still the drivers. Going forward the role of government should be less itself to provide capital but rather to

create the policy framework that will mobilise private funds for investment in ICT development.

4) This period of overall economic de-leveraging suggests an emphasis, in the future, on innovation and productivity. The consumer component of the ICT sector may, over the medium term, feel the continued effects of weaker consumer spending. ICT cannot look to the deeply indebted consumer in industrial countries to drag the world out of recession.

5) We may also see some consolidation in the ICT sector and government should not stand in the way of these natural forces. To interfere may result in the loss of productivity gains.

6) There is also a risk that merchantalistic exchange rate policies may prompt trade retaliation and political elites must avoid the tendency among nations for short-term national interest to prevail. They do bear a responsibility to keep markets open as the balance between creditor and debtor nations adjusts over time.

7) There is a danger that too much deregulation in the past will be viewed as one of the primary causes of the current crisis and that political forces may overreact by over-regulating as we go forward. We must take care not to draw the wrong lessons from this crisis. Additional regulation must be approached prudently so that the benefits of market forces and competition are not denied. This concern extends to regulated sectors like ICT. It will be necessary to guard against the economic crisis encouraging a generalised trend in favour of government over regulation.

DOINA BANCIU, General Director, National Institute for Research and Development in Informatics - ICI; Professor at the University of Bucharest, Romania, presented with great devotion the topic of

Digital Culture and Informing the Citizen –
First Step in Re-shaping the Economy - e-Romania Concept

Presentation of E-Romania and the role it plays in the digital culture phenomenon. Also on research and development in relation to large national projects. It is unanimously recognised that the economic crisis has had many negative effects around the world. It is widely viewed that ICT should overcome these negative effects and government should encourage the use of ICT throughout society. But, more than this, government should finance R&D in the area of ICT.

Among other aspects of ICT development, Europe has only very few widely recognised poles of excellence and this is felt at the level of university research and within private and state companies. European bodies have identified some problems and their causes. The lack of information flow towards cities and companies is one of these causes and this is particularly the case in Romania. The fact that the economy is weak and private and state companies cannot support research activities.

The research and development system in Romania is composed of universities, institutes and state or private companies. Any of these entities can participate in competitions and can access public funds that are allocated for research by the government. Funds are allocated by means of competitions.

In 2001, the Romanian government launched a major national programme in connection with the Information Society called InfoSoc which was managed at the time by the National Institute for Research and Development in ICT and the programme was significant in Romania for two principal reasons:

The programme encouraged cross-fertilisation between private companies and state companies. It also served to bridge the digital divide at the national level. Two years ago the Romanian government launched a national plan for research and the budget allocated for this is around 129 [XXX] euros.

The Romanian system for research and development in the ICT sector is characterised by very tough competition between private and state companies. Unfortunately, however, there is not an efficient system linking research and development and its outcomes to the market. Finally, there is a lack of pre-commercial procurement scheme. Even if the EU has tried to launch at the European level as an instrument to encourage research and development.

However, in Romania, research projects play an important role in developing the main components of the information society - e-gov, e-culture, e-learning and so on. Research projects have also had a very important role to play in the development of infrastructures: grid systems and cloud computing and, of course, in bridging the digital divide.

Many projects are used as a basis for the creation of large national projects. They are presented on the e-Romania portal.

The e-Romania portal is primarily a concept launched by the ministry of communication in mid-June 2009. The main objective of this portal is to create a unitary, coherent and consistent information framework that can be easily accessed by anyone and any time. The portal is structured on two levels; a national level and a regional level. At the national level the information is organised according to topics. These topics include e-business. At the regional level the structure covers larger and smaller administrative units.

The cost of the portal is borne by the Romanian government through the Ministry of Communication and Information Technology.

Above all it is important that companies can find information about regulatory frameworks. Secondly, they should be able to find new opportunities for the development of their businesses. On the portal they can find authorised, coherent and regularly updated information.

The portal is under construction. Its host is the National Institute for Research and Development. The E-Romania portal should contribute to the creation of a digital culture for citizens which is arguably as important as civic culture. The portal will also give a boost to the knowledge-based economy and, hopefully, help in reshaping the economy.

Such projects could be developed across Europe. This could serve to reinforce the European economy and eliminate one of the causes identified by the EU concerning the lack of information between research and development on the one hand and citizens and companies on the other.

MARK CLEVERLEY, Director for Strategy, Global Government Industry, IBM, USA, [www.microsoft.com], shared very interesting and thought-provoking reflections with the audience:

As the signs of a recovery from economic crisis start to become apparent it is important to look beyond the recession and acknowledge that the big problems that we face are not going to go away as we return to growth. We remain challenged by changing demographics, globalisation and concerns about the environment and threats to social stability. Coming out of this recession, as President Obama has said, the world has changed. However, although the world has changed it can be argued that the planet has got smarter and that the crisis has created an opportunity to push forward important discussions about the landscape of potential that opens up for businesses and government for achieving their goals. When you consider how technologies, cultures and societies are changing in light of the concept of a smarter planet there are three key elements to bear in mind.

1) The world is becoming instrumented. Sensors of all kinds from cameras to smart phones to RFID tags are becoming embedded across entire ecosystems, supply chains, cities and even natural systems like rivers. 2) The world is becoming interconnected. People, systems and objects are being able to communicate more easily than ever before. Soon there will be a trillion connected things – cars, appliances, roadways, pipelines, pharmaceuticals, even livestock – connected to the Internet – and the amount of information that this is producing is unprecedented. 3) Intelligence. We have more intelligent ways today to use these large volumes of information and much more advanced analytical capabilities to turn that information into effective and timely insight on which to base decisions about the way the world works.

Each of these advances have benefits on their own but if we put them together the network effect starts to apply: the more we do, the more we can do. The people and the cultures of the world are increasingly ready and able to take advantage of this situation. One aspect of instrumentation we can highlight is the rise of consumer electronics – mobiles, hand held devices and accessing systems. Each smart phone in the world has the potential to be a sensor. An example of interconnection is the rise of people talking more frequently and about more things than they ever used to do. And an example of intelligence is the rise of cloud computing – providing access to anyone to virtually unlimited storage and computing power.

Stimulus spending is often targeted at areas that take advantage of these smarter planet notions. Spending has the chance to speed up our opportunity to invest in modern infrastructure in which, for example, a rebuilt bridge contains sensors that inform us about how the bridge is feeling – what stresses it is under, perhaps even how many vehicle cross it at a particular time. Spending these funds judiciously on modern infrastructure and on smart grid systems, transportation, electronic health programmes can benefit all of these sectors.

As we explore the potential of this vision of a smarter planet we find that we could be doing much more much faster. For example, investments in digital infrastructures can accelerate a return to growth and ensure that when it comes it will be on a more attractive upward curve than it otherwise would be.

There are issues to be fixed such as inclusion, work regulation, handling sensitive and personally identifiable information all become much more deeply focused in this kind of world. The balance between security and privacy, the very security itself of different kinds of infrastructure as more of it becomes connected to the digital world. We need to look keenly to governments for support in this regard.

Governments have other roles too, to take advantage of the merging of the digital and physical infrastructures of the world. The good news is that the smarter planet attributes – instrumentation, interconnection and intelligence – are showing us the way and technology is doing more than it ever has done, almost to the point where, in solving a problem, technology is no longer the inhibitor. If you want to ask this smarter planet technology how many red cars from Luxemburg cross this bridge in the last hour? Or, where is this particular food item in the journey from farm to fork? Or what is the temperature of pig number 320 in herd X on farm Y? Or where is the next household fire due to a faulty heater likely to happen? Or what will be the condition of the traffic one hour from now? Or how soon is the city likely to flood given the current conditions? Or even, where are the car keys? Smarter planet technology should be able to provide us with the answers to these questions.

The less good news is that if a city like Stockholm can reduce traffic by 25% and put tens of thousands of people back on public transport while, at the same time, reducing greenhouse gas emissions then why can't Manchester or New York or Jakarta do the same? If Malta can organise to implement smart metering for all its household utilities then why can't Sri Lanka. If Rotterdam can proactively predict and prepare against flooding why can't Dakar? If New York can reduce crime rates by 27% and attribute it to smart analytics of crime patterns, then why can't San Francisco or Lyon?

This less good news is that, as technology advances in the direction of a smarter planet, to driving more actionable, real time insights from larger volumes of information and more diverse forces, that often leads us, sometimes uncomfortably to the notion that some real barriers to progress are based more on political will – the will to select, prioritize and overcome the challenges of culture and governance that we deal with on a day-to-day basis.

If we are really to shape the future, we probably need to do more of that. Public and private sectors need to become more anxious and more urgent.

GYORGY CSEPELI, Public Policy Director, Secretariat of the Commissioner of Infocommunications, Prime Minister's Office, Hungary, delivered a very concise and attention-grabbing presentation on:

ICT and Recovery: The Digital Public Utility

In terms of network readiness the figures, as far as Hungary is concerned, are not brilliant. In 2002 the country was in 32nd position but it has since slipped down ten positions. The causes of this negative trend are hard to pinpoint. However, it is clear that the government needs to find an appropriate balance between government intervention, government financial resources and the operation of market. It would appear that between 2002 and 2009 the art of public policy was not practiced. The conclusion we draw from this is that, for any government post, the public good cannot be identified by government forces or market forces alone. The public good falls between the two and is not easy to identify. Analysing the cause of this negative trend the major problem probably lies with infrastructure.

In view of this it is clear that regulation can do a great deal. Content is very important and digital literacy is of utmost importance. But without infrastructure you cannot do anything. Therefore analysing the state of the Hungarian information society the government came to the conclusion that the real broadband connectivity is extensive, real broadband connectivity is low, broadband penetration is low, and government service is inflexible and costly. As a

result, a year ago the government launched a programme – the Digital Public Utility – which may turn out to be a remedy for these negative trends.

The Hungarian broadband market is characterised by insufficient supply from a number of perspectives. But the biggest problem is the uneven distribution of broadband services across the territory. Hungary is not a big country but from a broadband penetration perspective it is too big. Therefore it has been decided that government intervention would be provided in order to counter the current challenges of the ICT sector. This will be part of the Siemens programme.

In times of crisis investments by government and market investments are equally important are equally important for the ICT sector. Like a flagship when this sector moved the rest of society will move and benefit.

JOHN KEOGH, Senior General Counsel, Canadian Radio-Television and Telecommunications Commission - CRTC, Canada, provided a most interesting and brilliant presentation:

In our converged world of communications policy makers and regulators have to contend with a broad range of issues that they have never had to consider before. Much like Australia, the United Kingdom and the United States, Canada has a regulatory body that oversees telecommunications and broadcasting industries. However, in the case of Canada, the mandate comes from two statutes: the telecommunications act and the broadcasting act. In 2009 two proceedings were initiated under each act both relating to the Internet.

The first proceeding was an examination of new media from the perspective of broadcasting. There is provision in our broadcasting act that programming that makes its way onto the broadcasting system should be predominantly Canadian. This is important given the country's close proximity to the USA and the fact that many Canadians speak the same language and share many cultural ties. For many years television and radio were the main sources of high-quality programming. Today, the Internet provides an attractive third option since it has brought together video and music on a single platform. What's more the Internet is going mobile as users embrace new generation multimedia smart phones and the coverage is growing as the wireless networks expand. It is only a matter of time before the media content found on the Internet will be accessible from just about anywhere. Content providers in Canada, like everywhere else, are trying to find the best ways to reach audiences across all these new platforms.

What will be the impact of the abundance of content as well as the change in consumer habits having on radio and television broadcasters? What kind of a regulatory approach is suitable in this environment? These are only a few of the questions that have been raised.

A public hearing was held in the spring of 2009 in which more than 30 parties took part, as well as many others who contributed their comments in writing. The findings were that new media services are being used in a way that is complimentary to the traditional system. The market is providing incentives and opportunities for broadcasters who incorporate them into their business plans. Television networks and radio stations are meeting their regulatory obligations in an environment that includes new media. As a result the Commission has decided to maintain its hands off approach. Its preference to let innovation and not regulation determine the next steps in the evolution of the Internet. The Commission has decided not to intervene for the time being and its approach will be reviewed within the next five years.

Just as the Industrial Revolution of the late 18th and early 19th Centuries marked a major turning point in Human society, digital technologies are having a profound impact in the 21st Century. Several countries have developed a strategy to ensure their citizens benefit as much as possible from these technologies. It is the case for Canada and it is a strategy that builds on the country's strengths, talents and diversity.

The Canadian government has hosted conferences on the digital economy in which stakeholders have made a number or recommendations. There have been discussion papers and reports that suggest that Canada needs a comprehensive strategy for the digital revolution. Such a strategy is necessary to remain competitive in the global environment and momentum is growing. The Commission has offered its assistance to the government in those areas that fall within its mandate.

The Commission has taken an interest in the practices of Internet Service Providers (ISPs) that they are using to manage the flow of traffic on their networks. Canadians are using the networks to access all kinds of media content. ISPs claim that certain applications can lead to traffic congestion on their networks which can impact all users. To avoid congestion they have no choice but to slow down certain types of traffic such as peer-to-peer file-sharing applications. These practices raise a number of regulatory concerns.

The Commission will be developing a number of guiding principles for the industry. In developing these principles the Commission sought to maximise the freedom of individuals to create applications and use the Internet. At the same time the principles recognise that ISPs have legitimate interests in managing their networks.

Over the past few years there have many interesting developments. The way we interact with each other and out public institutions is in the midst of great change. And this is only seen the tip of the iceberg. Next generation networks are providing even faster access to the Internet and will serve as key drivers of innovation, productivity and economic growth. These networks will achieve the promise of convergence between access, content and applications.

The challenge ahead will be to develop legislative and regulatory frameworks that encourage market driven innovation while recognising the needs of consumers.

SEBASTIÁN MURIEL, General Manager of the Public Corporate Company, Red.es, Spain, gave an illuminating speech on

Plan Avanza, ICT & the Future of the Internet

Once upon a time there was an information society blinded by technological enlightenment. There is a tendency among engineers and public administrators to talk in terms on complex acronyms. They like to talk about LDEs, ADSL, large numbers and abstract language, but at the end of the day, the driving force of technology is that people increasingly want to share information. They are looking for different scenarios. Today, more than ever, users are entrusting to 'clouds' private information – their photos, their friends and the contents of their computers. At the end of the day it is not technology they are adopting but people, and people have dreams.

In Spain, some years ago, some people had a dream about how nice it would be to have the same on and off-line identity for living, for working, for dealing with public administrations or

for selling our user-generated content. Wouldn't it be nice to have people and public administrations connected on the same network, to have students and teachers, researchers and enterprises collaborating online building innovation and the society that we want Europe to be? Wouldn't it be nice to share, in complete transparency, all the information that public administrations are gathering from our citizens? Wouldn't it be nice to have all citizens connected no matter where they live, how much they earn or whether they are at home or at work?

This is the revolution the is being anticipated in Spain. The central message is like the message of Thomas Edisson with the revolution of electric light. He wanted every home have light and is this type of revolution that we are facing today with the digital revolution. In Spain, in 2005, the Plan Avanza was launched to start work in this regard. Red.es is working in a pragmatic way, with all the public administrations in Spain, and with the private sector.

The company has focused on the extending broadband coverage to cover the entire country. Coverage has risen from 80% to 99% of rural areas in Spain in five years. The focus is now on getting people to connect. Spain is one of the leading countries in terms of broadband connection for enterprises, with 97% of companies connected to the Internet.

61% of citizens are connected to the Internet and around half of all households across the country. Spain is also one of the leading countries in Europe as far mobile broadband networks is concerned: 26 lines for every 100 inhabitants. There is a strong belief in Spain the mobile Internet is the future.

Connection is one thing but Spanish people also want to be part of the Internet, to collaborate and put content on the net. Spain is the first country in Europe and second only to Brazil worldwide in terms of people participating in social networks. Social networks are a revolution in themselves and Spain is actively engaged in the conversations in this regard.

One important issue being discussed in Spain is the introduction of electronic ID. To date twelve million electronic ID cards have been issued. The coming years will be marked by more intensive use of these cards. People already have the cards that are equipped with an electronic certificate which is not being used yet.

Spain is also a leader in the area of e-health. 97% of health centres have access to electronic clinic histories. There is much development in the area of e-prescription and, to date, there are over 6000 family doctors and 7 million patients that have made use of online e-prescription. All citizens that are part of the national health system have electronic health cards that are already fully interoperable between the seventeen regional governments that have the autonomy to manage the healthcare of their citizens.

In the area of education considerable effort is invested to introduce ICTs, not only in the infrastructures, but also in the area of digital content. There is an open source project called AGREGA which is a platform for teachers, students and families. It is a resource will many training materials.

NAJAT ROCHDI, Deputy Director Geneva Office, United Nations Development Programme – UNDP, shared with enthusiasm her expert view with the Forum's participants:

The issue for the UN and, in particular the UNDP, is how to use ICT for development and poverty alleviation. In view of the Millenium Development Goals which the UN has set itself, there is an urgent need for collective and innovative actions. By acting now and in collaboration it is important to see how we can collectively turn the current crisis into an opportunity.

The UNDP wants to deploy ICTs to set the stage for renewed sustainable development. It is important to understand the connection between the use of ICT and poverty alleviation. When we talk about human poverty it is not necessarily a question of income poverty but of human poverty. Many countries are rich but, nonetheless, still poor. This is something to keep in mind when coming up with visions and strategies for development.

It is interesting to consider how ICT for development and its related innovations can foster the achievement of the MDGs. Achieving MDGs is a win-win situation for all – for governments, and the private sector. It is not an idealistic view. It is really about a collective concern and what should be collective and common goals for all of us.

2009 started with critical global challenges: poverty, iniquity, democratic crises, globalisation and environmental degradation. It was not only a financial crisis. All of these crises are deepening political, social, economical and cultural divisions within and between countries, thus increasing the risk of violent conflicts and threatening social and political stability.

This is particularly worrisome when bearing in mind the accumulation of social economic problems and the invasion of the new values of globalisation have aggravated an identity crisis among the new generations regardless of the country or location. The resulting vacuum as we have seen has created a fertile ground for numerous forms of extremism.

2009 started in the midst of a crisis unlike anything that has been witness in living memory. The problem is that too may people across the world are both anxious and uncertain about what the future will hold. Yet, only one year ago, nobody could have predicted what happened. In the same way, we have very little idea about what will happen in thirty years' time.

ICTs when used to address development are one of those powerful tools that is transforming the traditional map of development, expanding peoples' horizons, dramatically shrinking learning curves and creating the potential to realise, in the space of a decade, progress that required a time span of generations in the past.

Access to a range of ICT's in developing countries can give people knowledge that empowers them. ICTs such as radio, television, telephones, computers and, of course the Internet – and not at the high-tech end but the appropriate technologies can provide access to knowledge in sectors such as agriculture, micro-enterprises, education and human rights, offering a new range of services that enable the poor to improve their quality of life.

Unfortunately everyone does not enjoy equal access to these technologies. As the divide widens it aggravates existing divisions of power and iniquities in access to resources between men and women, literate and non-literate populations, urban and rural populations.

The focus has to be on innovation. Innovation is not always about what we think it is. The Wikipedia definition is 'a new way of doing something'. It may refer to incremental, radical and revolutionary changes in thinking, products, processes or organisations. A distinction is typically made between invention – an idea made manifest -, and innovation – ideas applied successfully.

Inventions are potential change, innovations are changes realised. The private sector has clearly driven the experimentation and expansion of innovative IT models. It has applied open and user-driven processes to the development of new products and the results have been outstanding.

The UN wants this momentum of user-driven innovation to reach the development sector. Therefore, in referring to innovation in the development process is does not just mean coming up with good ideas, it means coming up with applications of those new ideas or even new applications of old ideas.

It is necessary to significantly increase the application of innovative ideas to the needs of the poor and the vulnerable. It is necessary to effectively leverage the skills and knowledge of creative local citizens as designers and producers of products, not only as consumers. It is important to invest in people as the greatest resource and most precious asset if we are to shape and not be shaped by the challenges we face.

This is of great importance in a networked world where efficiency, speed of delivery and optimisation are the key ingredients of competitiveness. In this context information and communication take over from modernisation. From social networks to mobile technology innovation in the area of ICTs in on the move and a new digital age is dawning.

Telecom companies become media houses, food retailers become banks, computers become phones and video stores. We have a Nanopod for personal music, a tiny mobile phone, a pocket-sized PDA with colour skin, an ultra compact PC and so on and so on.

By the end of 2008 close to 4bn people had access to a cellular phone, a number that dwarfs the number of Internet users (1.5bn). Particularly in developing countries, ICTs such as mobile technologies and social networks have reduced entry barriers: language, cost, interface etc. and made innovation and development possible. Therefore, while technologies provide fertile ground for the provision of basic government services, private services such as microfinance, and the involvement of local communities in the decision-making processes.

Mobile technologies helf find innovative solutions to meet pressing humanitarian challenges, to connect families separated by disaster. It helps emergency relief workers respond more quickly and empower more workers operating in rural areas. Mobile government is changing the way grass root organisations monitor elections in developing countries where weak capacity, infrastructure, freedom of speech and politic will prevail.

Government-on-the-go is enabling open ways for people to interact with each other and with institutions including civil society and NGOs. The private sector, media, parliaments and public institution interconnected thanks to SMS, MMS, blogging etc. A new era or democratisation is dawning. Participating and freedom of expression beyond the implicit benefit of instant and more extensive coverage, the cost of using SMS technology are becoming accessible. This in turn will not only get countries closer to the achievement of the MDGs but also develop new markets and new demand.

Mobile technology, nonetheless, faces its own challenges. On the supply side, many cell phone providers are starting to meet market limitations, particularly in areas inhabited by very poor populations where markets are either very small or inexistent. This might put a stop to the rapid growth of mobile cell phone users in the short run. On the demand side, mobile technology users do not have access to the required applications that will allow them public and private sources from their phones.

By matching supply and demand new opportunities will emerge both for suppliers of mobile technologies and end users in concert with national and local governments. This will generate win-win situations that will foster human development in the medium and long-terms.

These are some of the issues being addressed by the UNDP to prepare the ground for actions. It is important not to forget, however, that innovation for ICT in development with a view to helping the advancement of democratic governments, is not just about technology. It is about people with all the challenges this entails. Overcoming these challenges requires practical groundwork, starting small with innovations, learning from experience and sharing good practices and finding scalable solutions. Better benchmarks are needed to keep checking the pulse of progress and prepare solid agendas for the future.

And to finish with a quote from St Exupery: “the future is in our present. It is not good enough to plan it, you have to make it happen.”

Digital Content and the Media of the Future

The **chair** of the session, **GEORGE MAKOWSKI, Chief Commercial Officer, Business Segment, Romtelecom**, Romania, [www.romtelecom.ro], opened brilliantly the session with striking remarks:

Can you remember when Ford launched the first Model T? It was in 1907. Some one hundred years later we now have the Ford Mondeo. Now turning our thoughts to the Internet, can you remember when the first commercial Internet service was launched? On 6th August 1991 at CERN, date of the first commercial framework for the worldwide web. This gives us an indication of how technology is changing in the market we work in.

Yesterday's Telco operator is not the today's Telco operator. We have to change our business model. Why? Because the market is changing. As we observe, what is actually happening in terms of subscribers moving to mobile, in terms of revenues decreasing? We actually have to find new revenue streams in order to ensure that we can continue developing our infrastructure. In many cases these operators are developing IP-based technologies; infrastructure which allows the simultaneous delivery of voice, data and video.

Originally Telco operators were about voice; what we call 1P - one product. Then we added data - 2P. Now we have 3P which is basically voice, data and video and, increasingly, the buzzword in the industry is 4P as we add onto that mobility in terms of voice. In addition to this, if you actually look at the way technology is changing: ADSL, VDSL, Fibre-to-the-home or, as in the case of Romania, Fibre-to-the-window, we are increasingly becoming able to access high speed Internet at prices that were unimaginable several years ago.

So, what is actually happening? Operators need to be creative in the way they deliver the content. Not only in terms of using the existing fibre and copper but also, as is the case with Rom Telecom, developing new platforms as in satellite delivery or programming with the launch of Dolta which is our satellite platform for delivering content over the air.

From a consumer perspective, there is more choice. He not only defines his decision-making criteria based on price. He also looks at content, and content is one of the key elements that drives his decision-making in terms of what he buys and how he actually uses it. As the technology becomes more and more advanced this, in effect, is affecting not only Telcom operators - the fixed line guys - but also mobile guys who are now looking at streaming content over handsets. It looks at affecting broadcasters, both terrestrial broadcasters, free to air and indeed, also, cable. It affects the IT environment in which we work as hardware and software manufacturers develop new platforms that are able to deliver this content.

Who would have dreamed, five years ago, that Microsoft would be promoting a leading technology to deliver IPTV over a copper line? Content providers also have their own dilemmas as they have to decide how to deliver and price their content over different platforms. Consumer manufacturers also need to implement their technology to PCs, TVs and set top boxes.

So what is actually happening in this market? We started off the market by many operators providing video streaming to a PC over an existing Internet connection. An interesting statistic: today there are some three hundred video-on-demand operators in Europe. Many of these operators, when they first started, had problems in delivering this content. They have managed to create these thematic channels and this programming because of their creativity in terms of aggregating content, talking to content aggregators, talking to programming companies and getting content from film studios, TV archives and user-generated content which attracts the user to their platform.

Initially, we had problems with encryption. We had problems with protecting content rights. Today, however, the market has changed. It is completely different. We now find users who are generating their own content and creating their own platform so they can actually choose which content they wish to view. Take the example of Joost. This is a platform created by the platforms of Skype and Casa which enables you to choose what it is you want to watch and when. User-generated content is taking an even greater effect on our lives. Consider the example of YouTube, LinkedIn, Twitter, Facebook. Who could imagine today that on YouTube every minute, 20 hours of video of user content being uploaded onto their platform every single day. It puts it into perspective in terms of where we are. We now also see the creation and increasing role out of IPTV across all of our platforms in Europe. This, in turn, drives more and new services. Timeshift Video, video recorders, video-on-demand, and so the list goes on.

In addition to which we're also facing changes in terrestrial television. As the EU pushes all the EU members to migrate from analogue to digital transmission this, in turn, provides more opportunity to develop even more content. Today, if you look at the market, some five EU member states have already migrated completely from analogue to terrestrial technology. And, in fact, if you were to count all the available channels in Europe, the list would extend to more than five hundred. Of these five hundred some 25% are publicly owned and some 75% have been created and are being developed by the private sector.

So what makes a successful platform? Sport, films, sex, news? Everything that actually drives the user to look at your platform. Football and films are expensive content with the same content being increasingly available on multiple platforms, operators need to think about ways of differentiating their services. Interactive services, Bundling with voice, bundling with data, PVR, video on demand.

Where does this take us? We actually need to think about ways we encourage content providers to provide more of their platform online. We need to address some of the copyright issues with regards to how content providers provide that content, be it single territory, multiple territory, single platform, multiple platform, IPTV… They are all different platforms, all of which want to provide the same content.

Digital rights management. How do we protect that content? And, last but not least, issues regarding piracy and, indeed, file sharing.

In summary, the user has a choice. We, as operators need to make sure that we actually help the user to be more creative and enjoy the experience that we can provide.

WILLIAM S. COATS, Intellectual Property Partner, White & Case LLP, USA, [www.whitecase.com], provided in a very stimulating way, a captivating presentation on

Digital Content and the Media of the Future

Multi-player online gaming, social networking gaming have become extremely popular in the USA. Multi-player online games are increasingly popular in Asia. Companies are sweeping the market place and companies are flocking to them, trying to come up with business models that make money. This is always the real challenge with anything that is online.

What's not new? Content development. The movie studios are still trying to make money somehow and fighting against declining DVD sales. They are in a very difficult situation trying to protect their content from infringement. This is not a local problem. It is a worldwide problem for them.

The DVD Copy Control Association spends a great deal of time protecting content around the world. The key point is that the infringers actually need content in the first place to exploit and steal, so it's not in their interests to kill the goose that lays the golden eggs.

Worlds of Wonder is the most popular game in the United States. It is also one of the most popular games in the world in terms of subscribers. Although some of the Asian games will have up to three million people playing simultaneously. Worlds or Warcraft will have, on a good day, 10% of its subscriber-base (11.5 million subscribers) playing at any one time. Annual revenues are very significant and, by and large, it's a traditional subscription-based business model for Worlds of Warcraft and the other popular games.

One of the big new trends - and it's hard to judge whether it's a good or bad thing - are multi-player online games for young children, e.g. Club Penquin. In this game kids get to pretend they are penguins. As penguins they get to buy clothes and get special toys and things to make the penguin more attractive. Play is traditional browser base and it's free. Ninety percent of the people who play it start out on a free basis. However, you can't get clothes, for example, so all kids want new clothes and they run out to buy clothes and they have to start paying for it, either on a premium content basis or micro-transactions. This is the big new trend. These are small kids, kids as young as five play Club Penguin.

Another popular source is Facebook and MySpace. Games on these platforms are extremely popular, especially on Facebook. You have to start out with Scrabbulous which everybody played, at one time, on Facebook. It is a Scrabble game on Facebook. Of course Scrabble wasn't very happy with this as it allowed people to play for free. Consequently, the company sued and the game is now call Lexulus.

Zynga is a game company in the US that makes games for Facebook, MySpace and the Iphone. These games are extremely popular. They are simple to play and they are free. It is hard to work out how they make their money. It seems most of it comes from venture capitalists who are keen to expand their marketplace.

Mobile gaming is starting to take off as well. People pay small amounts for the games. The games are small but people like to sit around and play them. BSA Issued 2.4 million take down notices in the first half of 2009 and these are just the notices that they actually sent out. It's worth considering how much online theft is actually going on bearing in mind that that there are 2.4 million cases of theft that they discovered and that they are trying to deal with.

The Music Industry is facing very difficult times. itunes is helping somewhat but infringers always stay ahead of the content providers.

Move online makes connections most important but we are still trying to figure out how to make money from so many online transactions.

LUIS RODRIGUEZ-ROSELLO, Head of Unit "Networked Media Systems", Directorate General INFSO & Media, European Commission, presented with great know-how and enthusiasm

Networks and Media: Trends and Prospects in EU Research

Responsible for R&D in the European Commission on this very subject of Networks and Media. We are actually addressing the so-called world of convergence whereby content and networks and media are converging in this new area called Network Electronic Media. The main context is the framework programme of research that altogether, for the whole ICT environment, is more than 9 billion euros over seven years. To highlight the impact this research has had in the past, it is important to bear in mind that topics such as Digital Terrestrial TV, Digital Video Broadcasting or DVB standards are part of the development of these research programmes. Altogether more than one hundred countries are actually using these standard technologies that have become worldwide.

On the topic of convergence the first thing to say is that there are multiple dimensions in the world of media. Some of them are related to enabling technologies like broadband connectivity or 3D graphics online. Seamless access is provided by mobile wireless communications - broadband wireless communication. Storage and distribution is becoming more and more of an issue and more distributed through the use of clouds. Then there are a number of social trends, like user-generated content - the interaction between virtual and physical worlds - and mobility which are actually boosted by these technologies. But this is also a kind of social trend. It is my content that I have where I want it when I need it. An important element of this is being able to find the relevant content which is no longer possible with traditional electronic programme guides of the past. Now we have to find real powerful search capacities.

It has been said that when we are on one wave of technology we already have to be thinking about the next one. We have to admit that we will have some kind of disadvantage in the area of search. However, we are trying to have an intercepted strategy to promote media search. We have in this multimedia environment to search for pictures videos and other digital media objects.

If we look at the various trends which are going on in the field of media we see that one of these is massive collaborative media. Examples of this are War of Warcraft.

Initially, the web was used as a means of finding content, to get access to information. Then, in the second generation, there was a move towards more participation, social networks and so on. Now we are moving towards a new phase of co-creation, sensing and sharing information more and more. The new generation moves towards joint experience, joint participation, creation of content etc.

Another important trend is Global Media Processing and 3D. This is starting to be applied to a number of subjects like social networks, education and games. Even e-commerce, a new

generation of commerce based on augmented and virtual reality environments. We are now moving towards and open 3D immersive web which is emerging, combining the virtual and digital worlds with the physical world. We are funding research in these areas: Web 3D, augmented reality, interacting with games and the real world.

Another trend is ultra-realistic media. For example Japanese teams, we are collaborating , with, have launched the Ultra-Realistic Communication Forum addressing all the subjects of what is beyond high-definition TV. We are moving towards distributed creation and access of applications, e.g. in the area of mobiles with the iPhone and many other smart phones are a very good example.

In the area of user-generated content and user-generated services, we are moving from the current situation of professional content with limited providers of contents and services to more user-created productions. We are moving from centralised creation to ubiquitous collaborative creation, from silos content type tied to networks and specific services and even devices, and now to a kind of content that can follow the users on any device, any screen from mobiles phones to PCs or TV.

We are in a phase of transition from a user profile which was actually created and managed by the providers and the broadcasters to a much more personalised content controlled by the user. We are carrying out research in these areas, specifically on these contents which is still applicable on content-aware networks, on 3D media Internet, network search and retrieval, and immersive media experiences beyond HDTV and high definition cinema. For example on content-aware networks we are addressing content-centric architectures since it seems we cannot continue with the current paradigm of the Internet , as it becomes a media network we have to create another layer. New architectures like peer-to-peer are emerging which are trying to integrate broadcasters and telecommunications operators in order to come up with these new structures.

The most important issue here is the quality of the experience of the users. On 3D Internet and immersive media experiences we are looking at realistic 3D communications, real time rendering, immersive TV, multiview etc. It is about putting control about what is viewed in the hands of the user.

Regarding multimedia search and retrieval we are actually addressing a new area which can be described as event-based search, what is a kind of new paradigm: addressing the search with pictures and speech etc on the basis of an event of common interest to groups of users.

All these new technologies are crucial for universal access to information and knowledge and, I would say, for our future culture. Those who master the media are going to master the way the message is conveyed and the message proper.

We are trying to leverage the future internet with a much higher volume of compelling content and services and create a wider market and opportunities for SMEs dealing with content of which there are many.

We need to build up partnerships between all the stakeholders in European industry in the media, on content and broadcasting, ICT and electronics and aggregate research capabilities from all the research institutes of Europe to come up to meet this new global demand for personalised content in services. We want to follow an open innovation approach and we have launched a European technology platform which integrates most of the interests of industry, on network electronic media.

THOMAS HART, EU-China Media and Communications Policy Advisor, Hart-Consult; Associate, GOPA Consultants, China, outlined with great vision, clarity and insight the

Regulatory Challenges for Virtual Worlds

It is important to identify what is the role for government. Where is there a justification for regulatory intervention? We can use the example of virtual environments - let's call it Second Life and its relatives - to point to examples of things we have identified in the course of looking at the markets, the developments, the usage situation and the existing and emerging policy framework.

We have been involved with a project dealing with these issues for the past four years, from Telecoms Policy to Personal Information and Security, e-commerce, e-government, and also on this very generic term of multimedia Internet governance under which we discussed, in this case with the Internet Society of China, future requirements, and the regulatory challenges that come up through the very successful development of games and social networking sites and the combination of the two, in particular in Asia.

The first question was to ask whether this is a real phenomenon or just a passing thing that will not be accompanying us in the future. By drawing on the European expectations and the European market developments it is quite obvious that this will not be going away. On the contrary. We expect 2.3 billion euros in 2010 just from the online exploitation of video games and we will have 33% of the total games market meaning that online games are biting into the market shares of console games of off-line games and board games which already are massive markets.

This is a development that everyone will experience. There are no market segments, there are no people outside these worlds because either you know someone or you have kids or it will be surrounding you when you are looking for information. You will always be confronted with games of some sort, with the offer of casual gaming online with advertising that is based on gaming situations and so forth. This situation is already here and it is omnipresent.

The Massively Multiplier Online Role Playing Games are the most successful development in this area. It was already a very successful development in the off-line world. The trolls and the ghouls and all these fantasy creatures that appeal to a certain gaming community. We have a more recent phenomenon with social online games such as the Sims online. There is also the merging of 2D social networking sites such as Facebook with 2D and 3D gaming applications. We have got to a point where the distinction between these two worlds is not really true any more. What we have instead is a social networking site that also offers gaming value and game mechanisms inside.

It is interesting to see who the users are. Looking at the virtual environments, in particular the dummy variable Second Life, you have an amazingly high average age of 36 for Second Life subscribers. 42% are older than forty. These are the people who go in there, who try to figure out what it is about and who may actually find something there that keeps them inside up to a year. This is the average staying time before they forget about their account and become one of these avatars that are never to be seen again. I myself am an avatar never to be seen again although I dropped out after day two and if you go there and find a naked avatar who didn't manage to find the 'how to put on clothing' mechanism in Second Life that would be me. I didn't have to figure it out so I'm still in the nudist section there. There are things that people find in Second Life and things that people do not find and it's interesting to see that

the very basic mechanism is being fulfilled: create your own avatar, experience virtual worlds. This is what Second Life is about, that is what you will find there.

There is a reasoned analysis by ENISA - the European Network for Information Security Agency that assessed that among the people who seek more advanced forms of entertainment like movies, like proper gaming, like erotic adult entertainment, the vast majority said that they didn't find that there. It's a promise but when you are walking around those worlds it is not there in a quality that would be better than you find in other places on the Internet. They still spend a lot of time looking for it. The average visit lasts for two to three hours during the working day and much longer during the weekend. More than 40% of active subscribers say that they spend more than six hours per day doing whatever you do on Second Life: hanging out, chatting and trying to find out more entertaining things.

What kind of problems do you encounter in Second Life? What kind of regulatory challenges if there are any? You have basically everything there that you have in the off-line world. You have pirates stealing, you have a mafia system. You have cheat software that is robbing people of their virtual property. You have pornography, adult content without barriers to children and the proper age classification systems. You have some forms of social problems that are concentrated there. Here we can cite the example of World of Warcraft which says in the terms of usage that being openly gay is forbidden because they don't want to incite people to openly dislike gays in World of Warcraft. Think about that in terms of service agreement and it will show what kind of challenges there are, not just legally but also socially.

The challenges that need to be overcome either in terms of the service agreement or in terms of legal solutions is answered by what if questions. What if I kill another avatar? Can I kill another avatar? Is that possible? What if I offer my avatar as a prostitute? That may be illegal in certain areas where the Second Life platform is perfectly legal to use. What if I decorate my house with something that is offensive to someone else? What happens in these situations. In most cases it is unclear.

You can become a millionaire on Lindon dollars and then exchange those virtual dollars into real money and suddenly you create inflation in the real world by becoming very successful in the virtual world. All these things link to problems that are not really virtual world legal issues but are real commercial law issues. There are questions of the convertibility, questions of the legality of contracts, the validity of signatures, authenticity of identity. You find all these things recreated in the so-called virtual environment as a real-life problem.

The virtual world reaches its limits when it touches on commercial transactions. Those things have not yet been resolved. We have two prominent cases under way in American courts, one on the theft and copyright infringement of a Second Lift designed bed or sofa, and another on a real estate scam where someone was using self-programmed software to bid for real estate that was on offer more quickly than was foreseen by the Linden Labs.

These are first ventures of virtual life problems reaching over into real life courts. There will be many more unless the companies as well as the regulators and legislators get together and find some comprehensive solutions.

SAID AL ADAWI, Director General of Higher Education Admission, Ministry of Higher Education, Sultanate of Oman, gave a remarkable talk on

Technology Impacts in Facilitating Applicants Admission in Higher Education Institutions in the Sultanate of Oman

This paper concerns the technology Impacts in facilitating applicant admissions in higher education institutions. The government of Oman is encouraging the public and private sectors to 'electronise' their services, i.e. to get everything electronised and for everyone to apply or have Internet service by 2020.

The Ministry of Higher Education in Oman provides around 15,000 scholarships a year to students who graduate from secondary schools. To introduce our system we have two solutions at the level of the directorate for Higher Education:

To facilitate students to apply and obtain a seat in one of the institutions of higher education whether in the private or public sector. This is sponsored by the government. To talk about this system.

In the past students used to travel thousands of kilometers only to submit their applications to get a scholarship. And, at the end of the day, they were not sure of a place. This has now changed with the introduction of this new system.

Higher Education Admission Center (HEAC) is one of the directorate of the ministry of Higher Education. Established in 2005 it is responsible for processing applications of students who have completed their general certificate examination or equivalent. For students who have obtained qualifications in another system, such as GCEs, outside of the country can also apply using this system.

Yearly we have about 40,000 students who apply through this system. We have about 15,000 schorlarships to award. Registration is free of charge and it's a paperless system. We coordinate with students and the institution without using any paper.

The purpose of this system is to unify and facilitate the admission procedures of general education certificate holders or equivalent to the different higher education institutions in the country. So they can choose to apply through this system from anywhere, whether they are at home or outside the country.

There are two solutions in place for students. One is the online solution. The other is by SMS. The online solution allows people to log on via our website. The site contains all the details the students need regarding the duration and cost of the programme. They can also get all the information they need about the institutions.

Students graduating inside the country can enter the site of the Ministry of Education. They can log in using a user name and/or student or ID number. Immediately all the relevant information will appear for the students on the screen. They can check the information and make sure it is correct. If there is anything that is not correct they can simply contact the Ministry of Education online and the information will be corrected.

Students can add their mobile numbers to the site if they wish. This way the system will provide information to the students by SMS every time there is any change to their profile. If there is anything new to students' applications, the system will send an SMS.

The government has special scholarships for students who come from poorer families. There are two categories students: students whose parents earn less than 1500 dollars a month who are classified as low-income students. There are also social welfare students who are eligible to apply through the system.

If students have difficulties understanding which programmes they are eligible to apply for they can simply click on a link which shows the students all the programmes that the students are eligible for.

SMS: Students whose information is not held by the Ministry of Education of the Sultanate have to enter all their information and submit it by email.

Sometimes there are problems with the Internet in Oman so we have designed another solution for students. The SMS solution is very cheap and is not reliant on having Internet access. Students who do not have or cannot afford a computer can apply via SMS. There are around thirty services which students can apply for via SMS.

Data flow between HEAC and other related organisations: There are other stakeholders such as the Ministry of Social Development and other Higher Education Private Institutions. Then there are the schools and banks. All stakeholders can use our portal. Like the students they can amend or update any of the information about their organisation. All such organisations are given access to the system to update information in this way.

Public and Private Higher Education Institutions like colleges and universities can add the requirements of each programme or they can change the quotas for each programme according to their facilities. They can do so independently without contacting the Ministry.

In this way the Ministry of Education provides students with all the information they need. For schools it is also a valuable resource as they can check where students have registered. They can see whether students have registered or not to a certain college or university or even where they have been educated.

We have recorded four types of impact of this technology. The first is the impact of selecting competent students. In the past universities were selecting students based on their average marks. Now universities are selecting students according to their scores in specific subjects in relation to specific programmes.

It used to be the case that institutions had to deal with students of very mixed abilities. There were students of low abilities who had to repeat the year many times. The new system will improve the process for the selection of students so that they will be of a similar level.

We can also measure impact in terms of social success. Students no longer need to travel such great distances any more. From their bedrooms they can apply and obtain scholarships and go straight from home to the university.

We also report administrative and psychological success. Students are under less pressure when they apply for such scholarships.

ERIC LEGALE, Managing Director, Issy Media, City of Issy-les-Moulineaux, France, presented his great experience in the field of

Managing Public Information in the Digital Age

Issy les Moulineaux is known as it is the location of many IT companies like Cisco Systems, HP or Microsoft Europe and many TV channels like Arte the Franco-German channel, France 24 the new international channel and Canal + the leader in private TV in Europe. We have more workers than inhabitants with about 70 000 jobs for 60 000 inhabitants; a highly connected population with about 80% of the population connected via broadband; and, for example, more than 1.2 million visits to our local website last year. This is important because we have seen a big evolution over the past year in terms of local information. Of course, this largely centres on a local newspaper, the traditional way of communicating with inhabitants and companies. But now we have the website, we have web TV, we have SMS, Facebook pages and a Twitter account.

The printing press allowed people to read and now the Internet will allow people to write but not only with words. We are working on a European project as a living lab to experiment a new type of environment for digital content. We refer here to social networks of course, to 3D environments and RFID. The latter is what we may call the third phase of the Internet.

Ana-Maria David, Special Projects Coordinator HotNews.ro, Romania, outlined with inspiration the innovative concept of

Hotnews.ro - Online Media in Romania

Recall the time when we had to look an hour glass and wait for five minutes for internet pages to download. The floppy disk was the norm and internet penetration in Romania was under 5% and the cost of setting up a website was 200 dollars. That was ten years ago here in Romania. The website which is the subject of our case study is pressreview.ro, the predecessor of hotnews.ro. It was a site which cost 200 dollars to set up.

It was a complex site. It had very few photos and a lay out that was an innovative as the Jurassic Park. The site's audience was made up of 400 readers a day. Since this time the site has evolved a lot and it has gone from being a single news aggregator to the production of its own stories with the difference this time round that they are multimedia stories.

The Internet penetration rate has gone up since then and now stands at 35% and this raises the bar for us and for the other media publishers on the market. The internet has gone from being a novelty and the underdog to being a business in its own right. It has developed from being a friends' business and newreview.ro used to be to a real business and a money-making venture. Today the site has over a million readers a month. The staff has grown from a small handful of journalists working part-time to a team of 64 journalists producing some 200 news stories a day.

The site considers its competitive advantage to be the interaction with its audience. The site receives some 600 comments from readers every day. As the site's audience tends to be highly educated this provides the editorial team with more insights than the vast team of journalists could ever get in a month of research. Interaction is something which is greatly encouraged.

Content is now available on mobile phones and there will soon be an application for the iPhone and there are plans to go into video reporting. The objective is to be as versatile as possible.

Ten years ago, during the transition between text-based reporting to multimedia reporting was the future. Today we consider the future to lie in cross-media. But, of course, in order to be able to do this it is necessary to have a strong brand that can withstand translation into other media.

In terms of technology no one can be sure what the future will bring. Hotnews.ro is prepared for whatever comes. Our belief, however, is that the essence of new media is the branded message. One will have to be successful in creating a trusted brand. The content of the message is important of course, but is not the key of the future media.

Alfredo M. Ronchi, EC Medici Framework, Politecnico di Milano, Italy, inspired with his talk on

Content Formats Media

On the theme of new media, content and services we shall be addressing the basic concept related to the title - digital content and the media of the future. The idea is to try and find out what are the main ingredients creating the recipe for the media of the future. It is very unlikely that there is one specific media, one specific trend. It is necessary to take into account different types of content but also the different types of aims, the goals we are trying to pursue. Then there is the format we need to use to achieve this. There are the different media: text, movies, video clips, sound, etc.. Then there are the different channels in terms of technologies to transfer the content: online content and services, wireless content, mobile content and similar things. We have to consider all of these things together in order to reach the goal, to transfer something. This takes us back to the aim. It is something that will influence the media of the future.

If we are dealing with communication as the transfer of information or the transfer of knowledge or just to communicate for training, for entertainment or, basically, entertainment. We need to have the best format. This is a key point as we do not think we have reached full maturity of the formats. We are still dealing with texts, movies, sound - different media mixed together using different recipes. Recently, thanks to some enabling technologies like Flash we have been able to make announcements about the opportunities to create real, multimedia communication. However, there is still a long way to go before we reach the best format in conformity with the goals we are trying to reach.

Virtual reality, interactive virtual reality and announced reality can be seen as the ultimate media in order to immerse people in a virtual reality, a multi-sensorial reality. It is already possible to use basic technologies like Flash and a combination of text, video and sound in order to create something appealing in the field of news. The idea is also to distribute information, to be able to provide information of USB keys or DVDs as a kind of surrogate of newspapers. This is one of the potential uses of new media, and there are many additional opportunities.

Trying to figure out the media of the future, we have enough ingredients from the technology side. We have to look for the best combination in order to reach our goal and, sometimes, the higher channel of communication, the most appealing media may not be the best one as was testifies by SMS which challenged video phone calls and other incredible opportunities

that were becoming available to communicate. It has turned out that people are not so interested in video calls and, conversely, is very interested in sending text messages and communication by pure text.

SARAH XIAOHUA ZHAO, Legal Counsel, Coan & Lyons, USA, presented with enthusiasm

China New Rules - Three Networks Convergence

China's regulation context regarding telecom, broadcasting and the Internet is evolving very fast. Not as fast as the private sector would like, but if you cast your mind back ten or fifteen years, it was a monopolized market. The transition since this time has been astounding.

Last year the Chinese government issued a circular referred to as Circular no. 1, which for the first time opened up the broadcasting market for foreign investment indirectly, through telecom participation in broadcasting. This year, based on that development, there are some developments in favor of the opening up in terms of three networks convergence.

One of the rules that has been issued and which will become effective on 10th April is the amendment of the Management Measure on telecom business lessons. This amendment has lowered the threshold for participation in telecom infrastructure projects. In the past, telecom operators and providers were required to have registered capital of 200 million RMB ($US 30 million), but this has been reduced to 100 million RMB. This is the case for projects at the level of a province. For nationwide projects it used to be the case that companies were required to have registered capital of 2 billion RMB - $US 300 - but this has been reduced by 50%. The reason for reducing this is that the Chinese government wants to have more participants both from outside the country but also from domestic companies.

Case study: Private satellite/cable TV company: Fifteen years ago private companies were not allowed to get into broadcasting and the transmission business in China. However the CEO of the company stayed in the country during the Cultural Revolution. He wanted to do something for the poor farmers. He talked with the government and this is the sort of flexibility you could see in the approach of the Chinese government. The government issued several settlers and rules in order to support this project. It also gave the inclusive right for private companies to manage this kind of universal programme on behalf of poor farmers. From an economic perspective it had every chance of success. Eventually the Chinese company found themselves in an impass. They could only the government's technologies because Chinese technologies were not good enough at that time. So they came up with their own satellite/wireless/mobile/TV technology. It was so good that the company was invited by the UK government and a meeting was held in London in October to discuss the use of this technology during the London Olympic games in 2012.

The point we wish to illustrate with this case study is that, in China, the appearance is that the rules and regulations are very restrictive and punitive. Foreign companies see business in China in terms of headaches. However, if you can convince the Chinese government that your project is good for China and they believe that is truly in the interests of the Chinese government, people and culture and if, in addition, you can convince them that economically the project makes sense, then the rules and regulations cannot limit you. You can make the government make rules in favour of your project.

As commentator of the session, **HERVÉ RANNOU, President Items International**, France, [www.items-int.eu], summarized with great expertise the session's main statements and pointed to the fact that convergence in TV and video is a reality. There are four main platforms today: Consumer electronics; Games platforms; Information Technology; Telcos. Today here is the challenge –control the box to control the user and the user revenue. Who is going to control all exchanges in homes; home LAN management; home multimedia services; who is going to control the box?

Tomorrow: Who is going to pay? The TV broadcaster? But they face decreasing incomes. Mobile Operators? But they are interested in specific contents. Fixed line operators? But they face to tremendous investments in fibre optic infrastructures. Internet players? But they play in a no-frontier playground. And what about Control Rights? How to control them is one of the biggest challenges.

We are heading towards Global Media Merchandising: TV; WebTV; DVD; Games; Mobile Communities.

Mobile Broadband Wireless Access Connecting All EU Citizens Against Economic Downturn

The **chair** and **moderator CĂTĂLIN MARINESCU, President of the National Authority for Management and Regulation in Communications of Romania (ANCOM)**, Romania, warmly welcomed the participants and panellists, set the scene for the session by expressing his delight about the diversity of the panel and gave some great insights.

The panel consists of people from different sectors whose visions may be different but who have to work together in order to bring the future of technology to everybody's home. The session should provide them – operators, regulators and manufacturers – with a proper playground for exchanging ideas and experiences and having a real debate that can uncover common ground.

Several aspects of our daily life, such as looking at the weather forecast on the laptop in the evening at home, sending pictures from the top of a mountain during a vacation or using a computer at school, are based on broadband services, which are more and more enabled by wireless solutions.

Technologies are evolving rapidly and offering new opportunities and challenges for businesses and regulators alike. For instance, we may very well think of solutions for remote areas, best usage of the digital dividend, state of the art technologies, Next Generation Networks, the impact of regulation on the development of mobile broadband etc.

In Romania fixed broadband penetration is relatively low (12%), whereas mobile broadband is almost as high as that and increasing at a very fast pace. One of the national priorities of Romania is to increase broadband penetration.

The session will be divided in several parts, starting with the regulator's points of views. This will be followed by the industry's point of view, the operators point of view and the manufacturers point of view.

RUPRECHT NIEPOLD, Adviser with Special Responsibility for the Future Development of the Spectrum Policy, DG INFSO & Media, European Commission, provided remarkable and very detailed presentation on

Wireless Broadband Communications in Context: Needs, Initiatives, Opportunities, Challenges in the Context of Radio Spectrum Policy

Broadband communications constitute the basic infrastructure of knowledge based economies. ICT is a key driver for growth, jobs and competitiveness – even in times of economic slow down --, and ICT bears a prime potential for innovation. Therefore, broadband is a central element of the EU Information Society policy. Examples are the Lisbon strategy (and its ICT component i2010) which will now have to be transformed into a post-Lisbon initiative EU2020.

When i2010 referred to achieving a “Single European Information Space”, it implied infrastructure deployment, interoperability, harnessing benefits of convergence in terms of new applications, rich on-line content, quality of services, and an “inclusive” policy.

The initiative comprises actions on a national level of the EU Member States and as well as on the EU level. The EC is well aware that the bulk of the work has to be done by the Member States on a national level. The role of the EU is to ensure coherence, to stimulate and to give flanking support, collect best practices, to monitor and benchmark, to take care of regulation as far as the European dimension is concerned, and to provide financial support.

In terms of access coverage (broadband lines per population), the EU stands at 22.9% (EU27 as of 1/09) – but the tendency is that the growth is levelling out, which means that access coverage is still growing but not at the same pace as before. In terms of geographical broadband coverage, the EU covers 77% of the rural areas. In terms of speed, more than 75% of the fixed access lines are capable of above 2 MBps download.

Close to 80% of the broadband access lines are DSL, the other technologies are overwhelmingly cable. Concerning broadband wireless (terrestrial and satellites), there are no consolidated figures available in the EU. The estimation for NGA (fibre, VDSL) in the EU27 is about 2-3 million customers, which corresponds to about 2-3% of the access lines as of mid 2009 (compared to Japan: 49%, of which there is more fibre than DSL lines). The spread and the acceptance of broadband in the EU is “reasonable”, but fragmentation still persists: There are great differences between the Member States; there is a persisting divide between rural and urban areas; and there is a second divide: Many people do not use broadband because the costs are still too high, because of their educational background, and there is also a divide by income classes. Thus, the immediate task is to complete broadband for all. At the same time there is a new challenge related to Next Generation Networks: The deployment is rapidly progressing in other regions and Europe risks to rapidly fall behind.

Thus, President Barroso has announced that he will give also priority to the "European Digital Agenda": There will be a continued strong general and financial support, the EU will deal with regulation, R&D will go on – especially regarding wireless, there will be a strong push of the demand side in terms of propagating new applications, and there will be actions regarding spectrum policy.

Wireless access will be an integral part of the NGNs. First of all, because there is a societal demand for mobility, which is strongly related to location based services. But there is also a substitution effect because the speed of wireless mobile access already today covers many standard applications, including “wireless Internet access”. Wireless will be one of the key technologies to realise full coverage. In the long-term the EC anticipates that there will be a merger of mobile and fixed networks with a full fibre backbone and different access modes linked to it.

There is no one-fit all solution for realising rural broadband coverage and local choices may vary. Wireless has obvious advantages, but it has also handicaps. The difficulty in assessing the future is that it is difficult to forecast the evolution of the deployment speed and the costs of fibre vs. mobile networks. Further uncertainties concern the potential of integration of mobile and fixed networks. Will the synergy effects prevail or will the costs of restructuring or integrating of networks will be prohibitive? What will be the role of other access modes, such as satellites or cable? And what about the available spectrum? Due to the need to be able to monitor precisely the deployment, performance and acceptance of wireless broadband, the

EC has launched a major study, where for the first time consolidated and comparable statistics on wireless access on a EU level will be available.

In the context of wireless broadband and spectrum, the two key issues to deal with are spectrum amount and quality and the regulatory conditions. According to a report of the Radio Spectrum Policy Group, spectrum is available – but only if it is effectively made available. It is difficult to estimate the take up of wireless broadband. If the take up rate increases very rapidly, there might be the risk of scarcity. Moreover, as specified in the EC's WAPECS policy, this spectrum should be made available in a technology and service neutral manner. However, this does not mean that the Commission discards interference management and the efficient use of spectrum: Together with CEPT, the EC has developed a "block-edge mask" approach,
which at the same time prevents interference and allows flexible band channelling.

The next regulatory issue is to balance legacy rights with the trend towards opening up the usage of spectrum and allowing new entrants, which may require refarming of spectrum. The impact on competition when liberalising spectrum usage starts to become a very critical issue as one has to balance the benefits of the new value if liberalised f bands amongst legacy rights holders and new entrants. The paradox is that the intention associated to liberalising the usage of the spectrum, namely and reducing the control of the regulator to the benefit if spectrum users, at the same time calls for regulatory intervention to deal with the impact on the competition situation. Moreover, there is the need for a system taking into account that the very fast evolution of spectrum usage and services. Other issues that need to be addressed are how to determine new licence durations and whether tradability of spectrum offers enough flexibility. In total the EU has so far earmarked 800 MHz of spectrum potentially usable for wireless broadband, of which about 140 MHz are below 1 GHz.

The digital dividend is the result of the switchover from analogue to digital terrestrial television in Europe – which due to to the more efficient usage of spectrum by digital transmission technologies potentially frees considerable amounts of spectrum which become available for usages other than broadcasting. The drivers towards digital broadcasting are to improve the quality of broadcasting. By 2012 nearly all EU Member States will have switched over to digital television.

The main challenge is to decide how to reorganise the UHF band. A major difficulty is the fragmented situation of Member States: apart from different legacies in using the UHF band and interference issues, there are discussions on the optimal usage with all sorts of demands. Finally, international obligations need to be taken into consideration.

Acting in a coordinated way throughout the EU adds value. The potential benefits of the Digital Dividend usage are highly relevant in the context of the economic revival and a key element of the broadband approach for the EU. It is possible to provide enough flexibility to gradually align policies. However, an early analogue switch-off in all Member States is key to reap the benefits of the Digital Dividend.

At the end of the month there will be a Commission decision on a proposal for a "roadmap", representing an action frame for Member States and the Commission to implement a coordinated Digital Dividend approach. The action options of the roadmap have been examined through a socio-economic assessment study. The potential economic impact of a coordinated EU action is estimated at an incremental value of EUR 20-50 billion over 15 years.

The roadmap contains three lines of actions: The first one are immediate actions consisting of strongly reaffirming the switch-off date for all Member States, and defining harmonised technical usage conditions of the 790-862 MHz band for wireless broadband, albeit without an obligation for MSs to make band available at a certain date. Further, there are actions of more political nature to be proposed to the Council and Parliament in the context of the first Radio Spectrum Policy Programme (to be submitted in the first quarter of 2010). The decision has to be taken whether there should be a mandatory timeframe for making available the 790-862 MHz band, whether there should be a minimum efficiency level for the use of the digital dividend in the EU. Also, a common position for the coordination with third countries has to be established.

Long-range actions envisaged to improve the usage of the digital dividend are preparing for next generation transmission or compression technologies, ensuring minimum specs for receiver interference resistance, the development frequency agile wireless technology, the migration out of the UHF band of wireless microphones, and the usage of white spaces.

These actions must be see against the anticipated results of the Review of ECS Regulatory Framework as far as the EU spectrum policy is concerned. The new framework is likely to confirm the established mechanism for harmonisation measures defining spectrum usage conditions and in certain cases to allow for extended coordination using a comitology, to reinforce the neutrality principle (WAPECS), to define a multi-annual Radio Spectrum Policy Programme as strategic frame for EU action on spectrum. Furthermore, as regards international aspects, policy objectives can be adopted by the European Parliament and Council to ensure effective coordination of EU interests.

To conclude, broadband is and will remain a key chapter of the Information Society policy of the EU. In striving for broadband access for all, encouraging results have been achieved, but immediate further efforts are needed. At the same time the next generation networks are now a priority. For both objectives, wireless broadband is bound to play an essential role given its intrinsic qualities and as a complement or substitution of other access modes. Providing enough radio spectrum of sufficient quality is an essential pre-condition for reaping the benefits from wireless broadband. Past political action needs to be continued and reinforced. Regulatory conditions to access radio spectrum are crucial to offer an enabling frame. The review of the regulatory framework offers generic platform, but needs to be proactively used to deliver.

FINN PETERSEN, Deputy Director General, National IT and Telecom Agency - NITA, Denmark, gave a very interesting and distinguished presentation on the Danish situation and the Danish policy objectives towards broadband with a special focus on the wireless side:

Policy Objectives and Lessons Learned

The policy objective, set a number of years ago and recently reaffirmed by the Danish Government, is that by 2010, all Danes must have the possibility to access to the Internet via broadband. Denmark is a small country, but has many isolated islands. Today, Denmark has nearly reached this goal – more than 99% can access a broadband connection. Broadband penetration rates in Denmark are more than 37.1% for fixed networks – this is the highest rate in the world – and 7.6% for mobile broadband (this figure does not refer to mobile phones but to the use of dongles and a computer).

Denmark used a competition-driven approach to deploy broadband nationwide, by balancing infrastructure and service competition. No public money has been spend in the Danish telecom market and the Danish Government does not own any shares in telecom companies since many years now. In order to reach the goal of broadband for all, mobile and wireless broadband access are essential, especially in rural areas.

Denmark used certain spectrum auctions to fulfil certain political goals in terms of broadband: When the government issued the 3G licences 8 years ago, there where already four nationwide 2G operators. However, the auction design has been put in a way to promote a newcomer on the Danish market. This has been a great benefit because that company did not had a 2G licence but drove and is still driving the 3G roll-out in Denmark. The company now has a 87% geographic coverage and recently introduced mobile broadband with up to 21 Mbit/s.

When issuing some of the licences in the 3.5 GHz area for FWA/ Wimax, there was a condition in this licence that certain zip codes in Denmark have to be covered by the operator. If there was coverage by other means or if the same operator could deliver on other platforms, the operator was allowed to do so.

A new legislation on frequencies will become effective 1 January 2010. The objective of this legislation is to foster innovation, competition and the effective use of spectrum. The general rule in the legislation will be service and technological neutral allocation. After careful investigation a blockers mask will be defined. Moreover, secondary trading will be introduced. All frequencies will be tradable from next year. There will also be a general provision in the legislation which will ban spectrum hoarding in order to avoid that companies get a lot of frequencies and use it in an anti-competitive manner.

Further challenges in this context are the upcoming auction on 2.5 GHz next spring. The auction will provide more capacity in the mobile broadband network and will also be used to improve rural coverage.

Just before Summer the Ministers agreed to allocate the 800 MHz band to other services than TV. It will essentially be used for broadband to cover rural areas. Moreover, Denmark is in the process of refarming the 900 and 1800 MHz band.

By refarming the existing licence holders will still have frequencies in the 900 and 1800 MHz band, but it will be possible to get some new frequencies that will be auctioned and allow newcomers to enter the market. In the refarming of existing licences, the old obligation that operators have to cover certain areas will still be in force – a 95% 3G geographic coverage.

Refarming is one of the big challenges Denmark is facing. It is the delicate question of existing right versus competition and it would be helpful to have more guidelines from the EU in this respect. Another big challenge is the

Digital Dividend, dealing with the question of existing use versus future use. The switchover in Denmark will take place on 1 November 2009. But also microphones will change the spectrum. Other problems to be solved are related to interferences.

Broadband and mobile broadband are only vehicles for further growth of the Danish market. The liberalization of the spectrum is expected to increase the GDP by DK 1 billion every year.

However, it is equally important to provide good content, green IT and e-Security as well as to empower people to use new technologies.

PABLO BRITO, Vice Director EU Wireless Marketing, Huawai Technologies Co. Ldt, Germany, [www.huawei.com], gave a very interesting presentation on

Enabling Mobile Broadband for All with Single RAN

Some of the main challenges operators are facing: How mobile broadband can generate revenues? Because at the end of the day it is also about making profit. How different services can have different values and can create more revenues to operators?

Once the services are delivered, it is about managing the quality and managing the bandwidth. Operators also face the challenge of making the mobile broadband experience effectively – which means the right investment has to be there, but also looking at the cost and trying to reduce the total cost of ownership.

Moreover, spectrum resources are changing and operators are facing new issues such as spectrum refarming. Before, it was very simple, because it was clear that 900/1800 is for 4G. This is no longer the case and the question about the right technology arises. Operators have to answer questions like: Which technology? When to change? When to invest? How to enable mobile broadband?

All of us are using GSM services and nobody can say when this will change and when all these devices will move towards LTE to deliver broadband services. If we continue having several different networks, such as GSM, 3G or LTE networks, this will lead to a tremendous CAPEX and OPEX as well as a decrease of performance. At the end of the day it does not matter which technology is used, what matters is the service provided.

Huawai advocates one single network. It is important to make sure that mobile broadband is just another service offered by operators. They should still be able to serve existing customers with the existing demand and have a flexible business plan. Otherwise they will not be able to take the risks. There are so many options and questions to be answered in terms of technology and when to invest in a certain technology.

Enabling mobile broadband for all is key. Huawai furthermore proposes to consider mobile broadband as another service and to have one single radio access network – one network for all the services, with single equipment shared by all technologies and one single site, as well as one single operation in order to allow operators to focus on how to deliver the service and optimise the service regardless the technology.

CHRISTOPH LEGUTKO, Wireless Standards and Regulations Manager, Intel Corporation, Romania, [www.intel.com], provided a highly-interesting overview of

WiMAX: Enabling Mobile Broadband

Intel strongly supports technology and service neutrality and licensing arrangements, allowing the market forces to determine the ratio of paired/unpaired spectrum, access to sufficient spectrum and spectrum trading. Spectrum has to be issued very fast because there are also costs of missed opportunities.

Intel started with WiFi in the beginning of 2000 and it has been a great success. Intel is now trying to repeat the same success with WiMAX. WiMAX is not only the driving force of broadband connectivity, it also drives the LTE community to develop their systems faster.

Intel, as the entire WiMAX community, started with the 3.6 GHz band, because it was the only band available first to offer, sufficient channel bandwidth and capacity to provide 10 MBps per customer. The performance of WiMAX based systems is 2 to 3 times higher than the performance of 3G solutions. WiMAX and broadband equipment are also going to cover the digital dividend spectrum once it will be available. However, Intel does not believe that the digital dividend spectrum can offer real broadband. It offers basic supply and basic access to the Internet.

WiMAX is real and working. The next generation of WiMAX has been developed and in the recent ITU-R conference in Dresden the 4th generation of radio access interfaces has been submitted and already accepted by ITU-R as a complete submission. The next step will be the evaluation of the system to finalise the standardization and to prepare the acceptance of governments to introduce the systems on the market.

There are already many products available for WiMAX on the different markets. Their principle is once the market will be open – which means that the governments have made the spectrum available and the regulatory environment is ready, the delivery of equipment will start immediately. There are a large number of partner companies which will embed Intel's WiMAX modules in their laptops and notebooks.

Broadband in form of WiMAX is already developed on more than 450 commercial networks in 435 countries. About 100 companies are offering systems and there are about 350 different products available. The WiMAX forum states that there will be 1,000 products available by 2011.

WiMAX started in the U.S. at 2.5 GHz. WiMAX is also available in Amsterdam covering the whole city at 3.5 GHz. In Taiwan it offers mobile experience even in the trains. In India, a 3.5 GHz network covers thousands of villages delivering Internet services, telemedicine, e-Learning and e-Government services to more than 1 million people. Malaysia has a especially dynamic network system covering not only the large cities but also thousands of islands.

In Russia, the company Yota constructed 3,000 km of optical fibre in the Moscow area. They then installed base station networks of an area 1.5 km2 which corresponds to a cellular radius of 700 meters. Every base station is directly connected with 200 Mbps to the optical fibre network.

Yota is a company with 1,000 employees serving 20 million people covered by the network. (To compare the proportions: Deutsche Telecom has 100,000 employees for a population of 80 million, Orange France has 100,000 employees for a population of 50 million).

Thanks to the policy of the Japanese Government, optical fibre is available on every second street lamp in the Tokyo area and major Japanese cities. Japanese company which is going to deploy a network, does not have to construct the network itself, but just has to plug and play about 5,000 base stations getting Tokyo covered within half a year and are delivering up to 60 Mbps per customer. It takes about 60 seconds to plug and play and to get online with a notebook.

New applications drive bandwidth consumption. Generally, an average consumption of a modern user is about 18.7 Gigabyte/month. If this amount is downloaded with 14 Mbps (provided by WiMAX networks) it takes about 3 hours/month. If one makes the same calculation with 0.4 Mbps, which is generally offered per user by 3G networks, it takes about 104 hours/month.

Why is the cellular industry not motivated to deploy real broadband? First of all, there is an other profile of ARPU. For mobile voice the price was based on 50 Kbps – as regards Internet, the same price is applied for 50 Mbps. Moreover, there is also a revenue dilemma: Voice was rather simple to serve, offered high revenues and required few service. Service of fast Internet is different. It requires all IP networks basing on optical fiber network. It is a future of ubiquitous connectivity.

MATS NILSSON, Vice President and Head European Affairs Office, Ericsson, [www.ericsson.com], provided a bright presentation that outlined with great clarity the potential of mobile broadband:

In talking about mobile, we should not forget the fixed world and what capabilities, devices and services we want to offer to the end users. In most countries, there is a good fixed broadband service available with DSL and cable offering Internet access and single definition TV. That is also possible with mobile. This is why there is such a tremendous growth of the HSPA network – whatever can be done in the fixed domain can also be done in the mobile domain, so there is full value mobility. Of course there are things that can not be done with mobile because it would be too costly, such as multi-stream high definition TV, or high quality tele-presence solutions. In those areas fibre is needed. Fibre is also needed to feed the base stations.

What is happening now in terms of mobile access is HSPA coverage in the urban and suburban areas and demand growth is surpassing all expectations. With the very recent adaptations of the updated GSM 900 directive the capabilities are there to also to deploy HSPA networks in rural areas. By using 900 MHz band it is possible -- with the same side structure that exists for mobile telephony service – to get full mobile broadband services. That means that it is possible to reach the 99% coverage that exists today for mobile telephony also for broadband by using the lower frequency band. In addition to that, the higher frequency band offers a lot of capacities for urban areas.

Broadband can be deployed cost effectively in rural areas using HSPA. Examples are India, where 18 villages and 15 towns got access to Internet services by using HSPA or Mornington Island in Australia.

HSPA is becoming de facto the standard for mobile broadband. More all less in all devices HSPA chips are being integrated. It is expected to have 50 billion connected devices in 2020.

Just a few month ago, the number of mobile broadband users surpassed the number of fixed users. It is expected to have billions of broadband subscribers and 80% of those will be mobile by 2020. Of course fixed broadband will continue to increase but the default broadband connectivity will be mobile. The fixed connectivity will be used where extreme bandwidth is needed.

Already today it is possible to have 42 Mbps which gives the operator the possibility to offer services up to 1.10 Mbps downlink and 0.5 to 4.5 Mbps uplink. This is what a typical DSL line can do. Next year, LTE will be commercialised and then a peak rate of 150 Mbps will be possible. Future LTE releases expected for 2014 will enable peak rates up to 1 Gbps.

There is clearly an increased demand for high definition TV and here fixed broadband (fibre) is needed. Fixed broadband (FTTH) has to be deployed where it is commercially available to satisfy the needs related to multi-stream high definition TV.

When looking at the deployment in the fixed domain, it will never be possible and cost effective to roll out fibre in rural areas. There is the possibility to deploy ADSL and ADSL 2+ in some rural areas as well as to enhance the copper network with VDSL and VDSL 2+ in urban and suburban – but in very extreme rural areas only mobile access will be possible. Broadband is the cornerstone of economic growth. Therefore it is so important that there is now also the possibility to deploy mobile broadband in the lower frequency band.

DORIN ODIATIU, Marketing Director, Orange Romania, delivered a very incentive presentation to get to the bottom of the question

Enablers for Mobile Broadband Wireless Access

The development of mobile broadband wireless access is an already proven necessity. There is a high demand on the Romanian market - despite the economical downturn the number of mobile Internet connections increased by 150% in 2008 as compared to 2007 (from 1.09 million to 2.74 million).

The benefits of UMTS 900 are a much wider coverage and broadband services in rural areas. Operators are clearly interested in this solution, but investment in the deployment of UMTS 900 needs to be guaranteed by the right to use the 900 MHz band for a reasonable period of time.

The upper part of the digital dividend and in particular the 72 MHz, currently being chosen by an increasing number of countries, should be rapidly allocated to the mobile services. This is a crucial issue for the development of mobile broadband communications services and an important instrument for the development of mobile high-speed broadband services for the consumer benefits. The visibility on the timing required for the reorganization of the frequencies is a key issue to be addressed and necessary for operators and manufacturers. Another issue to be addressed is an adequate regulation for the markets 4 and 5.

The regulatory measures must be predictable and in place at the right time. The NRA has to consider the fact that today new investments in the telecom sector are done more cautiously by operators and investors than in the recent past.

Another enabler of broadband wireless access is femtocell. Femtocell is a 3G access point that uses a collapsed network architecture and IP connectivity. It is a solution for successfully developing wireless broadband networks. With an output power of 10 to 100 mW, it is a low cost device similar to a WiFi access point using 3G cellular operator licensed spectrum. Femtocell is seen as a voice enabler for operators with fixed access infrastructure. Moreover, femtocell-based services can use ADSL, CaTV, fibre optics and WiMAX backhauls.

In terms of end-user advantages femtocell will offer improved services (with a coverage radius of 50-200 meters femtocells will provide five bars of coverage throughout the house); higher throughput and improved multimedia experience (femtocells will support 4 to 16 simultaneously active users and higher data rates offloading the 3G/HSPA traffic from the macro network); and fixed-mobile convergence (a single voice/ data device can be used outdoors and at home but at different tariffs).

In terms of challenges and regulatory issues, the first question is whether the 3rd party ISP have the right to block or downgrade the quality of the femtocell traffic impacting voice and data quality? Moreover, there is no EU regulation available on this segment. The major drawback could be that strong incentives are required for the end-user to use its own broadband connection with or without an "open ISP" model. The end user needs to be aware of the potential limitations due to poor quality of service on his fixed broadband connection

Orange Romania got a positive feedback from the first trials. The main traffic on the femtocells was voice, rather than data. Morover, "open ISP" could be considered for an initial deployment. However, the use of the same frequency for the macro and femtocell layers will cause interference and reduce the coverage. Many femtocells in the network may create problems with interferences if not using a dedicated 5 MHz FDD carrier.

Prerequisites for a successful commercial deployment are first on the regulatory side: It will be necessary to find a solution for the high annual fees associated to the usage of a dedicated 5 MHz FDD carrier. But also on the vendors' side: The price of commercial femtocells needs to be similar to that of existing WiFi routers.

COSTAS KAPETANOPOULOS, Marketing & Communication Division Director, Cosmote Romania, [www.cosmote.ro], made an excellent clear and concise presentation on

100% Broadband Coverage – The Next Challenge

Within the framework of the European Economic Recovery Plan, the European Commission aims to achieve 100% high-speed Internet coverage for all EU citizens by 2010-2013. In areas with a lack of infrastructure, such as less populated areas or remote isolated rural areas, an increased spending on new telecommunications infrastructure boosts the productivity and employment potential of a local economy. 30% of the EU rural population still has no access to high-speed Internet (December 2007), while in Romania only 10.52% of the population has true broadband access.

The Romanian Ministry of Communications and Information Society issued the "Governmental strategy for the deployment of broadband electronic communications in Romania during 2009-2015", which aims at increasing broadband coverage, especially in rural areas. The Romanian NRA is currently consulting the public concerning the opportunity to allow the supply of 3G services in 900/1800 MHz bands. The Ministry of Communications

and Information Society intends to implement a project through which EUR 84 million will be invested in 11,000 localities (white zones) to deploy broadband infrastructure.

The end users want individualized services, mobility, accessibility and innovation and service diversification.

According to forecasts of the EC, globally 87 million people will use their mobile for ticketing in 2010. In 2011, mobile advertising will be worth USD 11.5 billions. In 2012, 950 million mobile users will access social networking sites. By 2013, almost 64% of the world's mobile traffic will be video.

The benefits of broadband communications for the communities are improved access to education through e-Learning, faster economic development and business growth, access to a larger spectrum of information resources, an increase of jobs, e-Government services, and improved access to health care services (e-Health).

The mobile broadband uptake is estimated to be 4 times higher than the fixed uptake. In 2014, about 80% of the broadband connections worldwide will be mobile connections. About 50 billion devices worldwide will offer broadband connectivity by 2020.

There remain a number of regulatory challenges to face: Future mobile broadband applications are technology and spectrum dependent and they need high CAPEX from companies in order to support them. Regulators have to address the issue of spectrum limitations that operators are facing, base station licensing – which becomes more and more difficult and harder and also the public policy on those issues. Continued uncertainty is a constraint to investment and innovation.

According to the analysis of Mason, DotEcon and Hogan and Hartson in September 2009, the digital dividend represents a unique opportunity to realize economic and social benefits across the EU. However, for Romania the digital switchover is not specified yet and the cleared spectrum (digital dividend) is neither specified nor allocated. Corresponding to the above mentioned analysis, the economic and social value of the digital dividend across the EU is expected to be in the range of EUR 150 to 700 billion.

MIHAI TARNICEANU, Associate Director, Regulatory Affairs, Vodafone, Romania

Mihai Tarniceanu delivered his presentation in Romanian. A translation of his presentation will be included in an updated version of the Conference Proceedings.

OVIDIU GHIMAN, Chief Strategy & Business Development Officer, Romtelecom, Romania, [www.romtelecom.ro], brilliantly presented the views and efforts of a fixed operator to close the digital divide.

Romania is probably one of the most competitive markets in Europe and the Romanian telecommunications market can be considered as a study case from many perspectives. Romania has the highest number of operators. There are both national and local operators, all of them trying to leverage as best as possible their infrastructure in order to provide broadband for as many customers as possible.

Romania has a very aggressive telecommunications market in terms of pricing, there is a very low ARPU, and the digital divide between urban and rural areas is significant. In urban areas the cable TV operators are extremely active and almost 2.5 million households are already covered with fibre networks. In rural areas only a very limited number of households can access broadband services.

Romtelecom had a late market entrance. The company completely changed its strategy in 2007 and now consideres broadband as a top priority. Today, Romtelecom has 700,000 broadband customers. The company is still investing a lot in the deployment of nationwide broadband capabilities. There is a direct relation between the increase of broadband penetration and overall economic growth: Market studies estimate that an increase of the broadband penetration rate by 20% would increase the GDP by 3%.

All national and mainly fixed operators are facing challenges when addressing rural and remote areas and the question about the corresponding costs and the technology to use. This is rather complicated in the Romanian market as there are, besides national operators, also local operators deploying networks in a very easy way. This is the reason why Romtelecom participated in a tender for a CDMA licence in 2008. The company uses this CDMA technology for providing broadband services in rural and remote areas but also to complement its fixed broadband portfolio with the mobility benefits for the customers.

Mobile technologies are an adequate solution for bridging the digital divide – not only from the cost perspective but also in terms of the benefits its brings (e.g. bandwidth). Of cause there are different degrees of leverage in using mobile technologies. Corresponding to the experience made by Romtelecom, CDMA provides the lowest cost to deploy broadband infrastructure in areas with a low population density.

The digital divide is not only a divide in terms of available infrastructure but also a divide in terms of services. This means a lack of access of potential customers to computers and computer illiteracy. Romtelecom is addressing this by offering bundles of broadband connectivity and equipment in order to provide customers with a complete broadband solution.

Moreover, there is a direct relation between the digital divide and the digital dividend. As local operators are deploying infrastructure that provides customers with at least two services (analogue or digital TV and broadband), the way the question of the digital dividend will be addressed will also impact the ROI in rural areas.

--- ✦✦✦ ---

The concluding **Q&A** addressed the question whether Governments should invest in mobile or fixed broadband infrastructure.

Ruprecht Niepold stressed that there is no unique response. Mobile operators try to expand the coverage of their networks, but they try to do this in a economically reasonable way. They will not expand it if there is no revenue. With lower frequencies becoming available the mobile networks will increase in coverage, but they will not completely cover all areas. This is why in many countries in the real white zones – the spots where is no hope to see a business case – other forms of initiatives are undertaken. This is where local communes try

to set up infrastructure and open it to everyone who wants to run it or run it themselves. State aid can be helpful for regions without any business case. However, the use of such subvention in Europe is very diverse: For instance, in Germany many communes are simply building empty ducts or ducts with dark fibre, hoping that the existing infrastructure is then attractive enough for operators to come and to use the infrastructure to offer their services. This is also a way where suddenly fibre gets to very remote areas without waiting that the general fibre extends to these places. Governments have the duty to ensure full coverage but should apply a hands-off policy as soon as the market can do it alone.

Christoph Legutko answered that radio and the digital dividend offers an immediate way to provide connectivity to the public in rural and remote zones. The history of telecommunications showed that radio was always first, the wired – in this case optical fiber – followed as soon as possible.

A rather unpopular question is —Do we need competition for infrastructures?

During the ITU discussions on the 3rd and 4th generation networks‘vision in 2007 and earlier, the operators and administrators stated the 4th generation radio network and the competition of the networks will not be feasible. There is a need for a new approach which enables competitive implementation of the newest technologies in the networks but at the same time avoids the competition of the infrastructures. The first step is already done and most of the radio networks are shared. Mr. Legutko gave an example of roads as model for constructing and operating of infrastructure: The local regulatory and governmental entities decide that the roads should go from A to B. Then, they launch a tender to construct the road (network) and the roads’ constructors (network providers) compete for contract. The competition of networks’ content (provided by content provider) is like competition of the different types of cars provided by competing car manufactures. When this model of competition works for transportation infrastructure why should it not work for telecommunication infrastructure?

The second question addressed the issue of spectrum refarming.

Mihai Tarniceanu explained that there are two ways to think about spectrum refarming: one is related to the opportunity of transposing the EU decisions into national Romanian regulation; the other one is related to the refarming in practice and especially to the need to recover the investment that is required to deploy UMTS 900/1800 networks as well as the conditions that an investor needs in order to decide to invest. Vodafone fully supports the transposition of the EU regulation on the Romanian market, but wants to point to the fact that there are some other conditions to be considered.

Dorin Odiatiu stressed that refarming represents a big opportunity for Romania in terms of developing its wireless access. Many rural areas that are currently not covered will be covered once the process will be implemented and operators will start investing. However, as already mentioned, the operators will invest and they need to have the guarantee that their investment will be sustainable.

European Programmes in the Benefit of Local & Regional Development

Note: Some of the speakers delivered their presentation in Romanian. A translation of these presentations will be included in an updated version of the Conference Proceedings

The **moderator** of this session, **HELLMUTH BRODA, Information Technology Advisor, Dr. Hellmuth Broda Consulting,** Switzerland, welcomed the panellists and participants and introduced the overall topic by pointing to the fact, that this session on Local Governments does not intend to look on national or international programmes but on local and regional governments.

The session's **chairperson, MARIUS FECIORU, Secretary of State, Ministry of Communications & Information Society**, Romania, provided a great introduction in the session's topic by explaining his government's achievements in using ICT in benefit for the citizens and disclosed some statistics on high speed internet penetration in the country.

[Presentation in Romanian]

BENEDIKT KLOTZ, **Public Sector Industry Leader, IBM SWG Central and Eastern Europe, IBM Corporation**, Austria, [www.ibm.com], provided an impressing presentation on how technologies can be employed to build smarter cities which will benefit the population and provide a good degree of sustainability regarding people, business, transport, communication, water and energy:

Smarter Cities:
How Cities can Lead the Way into a Prosperous and Sustainable Future

Building a smarter planet is IBM's point of view on how interconnected technologies are changing the way the world literally works. Smarter planet is also the foundation for IBM's vision for smarter cities, a vision that demonstrates how cities can lead the way into a prosperous and sustainable future. Today's cities face a range of challenges and threats to their sustainability - challenges across their systems and core infrastructures such as transport, water, energy, government services, education and healthcare.

In 1900, only 13% of the world's population lived in cities. In 2007, the majority of the world's population, 3.3 billion people, lived in cities. By 2050, that number will have risen to 70% of the Earth's total population. We are adding the equivalent of seven New Yorks to the planet every year. City governments, more so than even states, provinces or nations, will increasingly serve as the crucibles where the success of failure of our planet is determined.

Cities around the world are facing challenges: Demographics are one of them. Cities in developed countries are facing shrinking populations, while cities in emerging markets have to cope with rapid increases. Cities face a regulatory and policy challenge, with businesses facing unnecessary administrative burdens: It takes 44 days on average globally to set up a business. Transport is an important issue: Current transport systems are causing significant

congestion and pollution. Traffic congestion costs the U.S. $78 billion and 4.2 billion lost hours each year. Cities face challenges to enable adoption and use of ICT. 5.1 billion of the world's 6.7 billion people are still not online. Current water systems are hugely inefficient and are not reaching all cities' inhabitants: 35% of water supplied globally is estimated to be lost through leakage, costing $14billion. Cities are driving global greenhouse gas emissions - but they still cannot provide secure energy supply to their citizens. Cities are responsible for 80% of global emissions, which are up 45% since 2010. All these aspects are highly interconnected. A good communication system in cities, for instance, fosters economic growth by attracting businesses. On the other hand, if there are many businesses, this also increases the amount of traffic.

There are four major areas to focus on: technological, social/demographic, economic and environmental. At the end of 2008, 50% of the world population lived in a city. 18 countries in the world with contracting populations - in 2050, there will be 44. Urban population will almost double between 2010-50. Rapid urbanization is creating high stresses for many Asian cities, in turn driving the construction of hundreds of new cities.

When looking at the economic side, the top 100 urban agglomerations currently account for 25% of worldwide GDP. The developed world has under-invested in its cities; the developing world needs new urban infrastructure ($41 trillion needed by 2030).

Environmental issue are driving cities to cut carbon emissions and increase the energy they get from renewable sources. There will be 1.2 billion cars on the road by 2015 (about 1 car for 6 people). There is also a big challenge concerning water quality, as 95% of the world's cities still dump raw sewage into their waters

As regards technology, there is convergence of pervasive digital networks, cheaper sensors, and cheaper analytics. There are over 4 billion mobile cellular subscribers in the world today (60% penetration) and location-based services and social networking continue to grow in capability and popularity. IT has made it possible for global enterprises to operate anywhere in the world. The world has become smaller, the world has become flatter - essentially due to a global market where historical and geographical divisions are becoming increasingly irrelevant --, and the world is about to get a whole lot smarter. Computational power is being put into things we wouldn't recognize as computers. Indeed, almost anything -- any person, any object, any process or any service, for any organization, large or small -- can become digitally aware and networked.

Because smart technology and intelligence is being infused, our cities become more instrumented, interconnected and intelligent. In the area of instrumentation, there are sensors in smart meters for electricity, water, or gas distribution networks, there are building management systems and traffic and transit sensors and many more. In the area of interconnectivity, we can see heavily networked environments – fibre, wireless, buildings, open spaces, and public environments; networked sensors, sensor platforms, and concentrators, city taxonomies etc.

Systems are very capable today. There are lots of data – how to get value from it? Systems today have the capability of real-time analysis of sensor data streams; it is possible to get an "enterprise-view" visibility of the city in action or to do behavioural modelling of physical, natural, and people systems, and it is possible to optimise data across silos.

That leads to certain capabilities like smarter transportation, which represents an opportunity to cut traffic by as much as 20%. There are smarter energy and utilities - an opportunity to

reduce energy use by up to 15%, and smarter healthcare - an opportunity to lower the cost of therapy by as much as 90%. There is smarter public safety (up to 45% of a city's budget goes to public safety); there is smarter education and smarter government services.

Today there is very wide degree of analytic capabilities integrated in smarter systems: from standard reporting to having alerts where specific actions based on intelligent data can be taken. It is possible to do forecasts and simulations, including if–then analyses, as well as predictive modelling and optimisation.

Smarter public safety is an opportunity to turn data into insight to protect citizens and communities. A smarter city uses advanced technologies and community-based approaches to anticipate and prevent, not just respond to, crimes and emergencies. Three examples of public safety are Crime Data Aggregations, also known as Real Time Crime Centres, putting decades worth of crime information at the fingertips of law enforcement officers at all times. There is also Emergency Management Integration, connecting police, fire departments, ambulance services and other first responders so that all are instantly alerted when an emergency takes places. Smart Surveillance Systems use digital cameras to continuously monitor urban areas and automatically alert authorities when a suspicious event occurs or when a license plate, vehicle or other entity is recognized.

For instance, the NYPD has implemented a Crime Information Warehouse in 1995 that gives officers mobile access to more than 120 million criminal complaints, arrests and 911 records, as well as 5 million criminal records, parole files and photographs -- resulting in a 27% reduction in crime. The crime information warehouse links and analyses data on virtually all crimes committed in an urban area. It collects data from a variety of sources, analyses data in real time and crime fighters have access to this information anywhere, anytime. New York City, case closings are 25% higher than the national average, partly due to the new analytic tools available to investigators. In addition, crime has dropped 20% since 2002 in spite of a decrease of 3,000 officers.

The City of Madrid has developed a new Emergency Response Center, which aggregates emergency call data and instantly alerts the proper authorities, including police, ambulance services and the fire brigade. The city has experienced a 25% reduction in response time as a result of the implementation. Another example is the Gauteng Disaster Management Center. The Gauteng Province is exposed to an array of hazards that can threaten livelihoods and damage critical infrastructures. The Province will also be hosting the 2010 FIFA World Cup Games. The local government needed a real time Common Operating Picture and interoperability for its command center and officers in the field to prepare for emergencies and support emergency operations.

Smart Surveillance Systems turn cameras into information sources allowing to analyse motion, the movement of objects, face recognition, real time alerts and many more. Smarter transportation represents an opportunity to improve the transit experience, reduce congestion and encourage a modal shift among users. Cities can infuse intelligence into their entire transportation system, improving drivers' commutes, giving better information to city planners, increasing public transportation usage and the productivity of businesses, and raising citizens' quality of life. Some examples are Road User Charging employing a dynamic toll system based on the flow of vehicles into and out of a city to reduce traffic; Electronic Fare Management, enabling rail, bus and road customers to purchase fares via SMS or online and have the fare collected automatically; or Transportation Information Management in order to gain real-time traffic prediction and intelligent route planning capabilities.

Smart tolling systems are using cameras and sensors positioned throughout the city, along with a central computing system that processes vehicle identification data, to charge drivers varying rates depending on the time of day. Stockholm implemented an intelligent toll system in the city center, which resulted in 20% less traffic, 40% lower emissions and 40,000 additional users of the public transportation system. To encourage citizens to use multiple modes of transportation and make it easier to align the cost of transit with its impact on the environment, the Singapore Land Transport Authority implemented fare management with smart cards that can be used to pay for buses, trains, taxis, road-use charging and parking. The annual impact of congested roadways on the U.S. transportation system corresponds to almost $200 billion cost of congestion, 4.2 billion lost hours and 11 billion litres of gasoline!

The following **Q&A** part of the presentation addressed the question the benefits of ICT in smarter cities that could be quoted to invalidate the argument that ICT adds to pollution. In his answer Benedikt Klotz confirmed that ICT consumes energy, but today all the IT-providers are going towards green technology using less energy. On the other hand, smart technology used in smart traffic management systems or in smart buildings can very strongly reduce energy consumptions. This also applies to smart energy grids and there is a large range of areas where the usage of intelligent sensor technology can have a strong impact on reducing energy consumptions.

The next questioner asked if smart technology can be implemented only in larger cities due to the high related to its implementation. Mr Klotz pointed to traffic management as an example for smart technology that can be implemented even in smaller cities. The advantage is that cities can go towards the objectives of reducing traffic congestions and green house emissions while at the same time generating additional revenues for the cities. Margarete Donovang-Kuhlisch added the example of the city of Stockholm having implemented the intelligent toll system. Stockholm is only paying for the tolling and not for the infrastructure that is necessary to implement such a solution. This is a managed business process services which is run in one of IBMs data centers. IBM is only charging for the application.

The following question was what can IBM tell the cities that do not have the infrastructure to implement smart technology solutions. Mr Klotz answered that each city has certain priorities and all starts with an assessment of city priorities – in order to than driving it into real action. Even small cities can drive top down from their objectives to a real implementation to intelligent capabilities. Mrs Donovang-Kuhlisch added that lots of mandates are currently driven by the European Commission. The EC is thriving to develop Europe into a barrier-free market – and there are lots of barriers to be considered, ranging from the language barrier to mobility barriers. There is a political mandate in Europe and probably also the possibility to benefit from these EU programmes.

MARGARETE DONOVANG-KUHLISCH, European Government Industry Technical Leader, IBM, Germany, [www.ibm.com], expanded on smart e-Government services for citizens and enterprises. She explained with great enthusiasm and clarity the elements of smart government, enumerated the suitable technology enablers, listed the challenges we are facing and shared IBM's vision for a smarter planet.

Smart e-Government Services for Citizens and Enterprises

e-Government is taking place at the level of local governments because this is where public services have to be distributed. Globalisation means new threats, also for governments – and in particular to local governments where the events which threaten the society appear. These threats can be everywhere: related to traffic, energy provision, and many more. ICT more and more becomes an element of critical infrastructure.

IBM's innovation vision is to build a smarter planet which is instrumented, interconnected and intelligent to benefit people, companies, industries, governments, cities as well as man-made and natural systems.

Governments turn smart by becoming network-enabled, effect-oriented and context- and history-aware. The different disciplines for smart governments are – at the first place – serving the citizens (including serving citizenship, education, social services, health and recreation, energy and environment, tax payment and cash flow, real estates, travel and transportation. Another discipline is serving the businesses (including labour market, tax and cash flow, trades and industries, real estate, travel and transportation and energy and environment).

Another pillar of smart governments is the aspect of providing governance. The EC in particular has created a DG called "Justice, liberty and safety" which can be considered as an innovation in itself. Justice includes the aspects of law enforcement, public order, and jurisdiction. Liberty includes all aspects of freedom of movement and democracy. Safety comprises the disciplines to protect and recover – an aspect which becomes more and more important and where it is really necessary to apply smart technology - and defence.

Governments also have to be effective. This can be achieved through effective internal administration (human resource management, asset management, procurement, financial administration and IT environment).

Another important factor of becoming effective as a governmental body is to be interoperable with others - containing several layers, which are quite well described in an architecture white paper published by the EC, called the European Interoperability Framework. The paper in particular defines technical interoperability, standardisation in semantics, as well as procedural and organisational interoperability.

Finally, there is the value network in which governments have to move in order to smartly serve citizens and enterprises. The value network needs to be provided via points of single contact – is a term defined by the EC. Players in the value network are NGOs, governmental organisations, national and cross-country organisations.

Last but not least, governments have to become network-enable, which is about the ability to share services between organisations, to communicate in a coherent and transparent fashion, information fusion, applying business intelligence and the capability of history and context awareness.

A Component Business Model is a methodology to describe an enterprise by looking at its different tasks. The component business model has three blocks for any capability: The first is a strategic one ("what do we want to achieve?"), the second one is "how do we control that the strategy is being fulfilled?", and the third one is the execution level. An example for a service category that is about the settlement of citizens' and businesses' financial score with the public sector could be taxation and cash flows.

The Point of Single Contact is a concept developed by the EC to address the issue of barrier-freedom. The idea is for each task to have one single contact point where all the information can be retrieved. The point of single contact is the sole expert to assist the applicant – he needs to be a knowledge worker – as smart case management is about semantics and semantic context. The points of single contact inform, counsel and help the citizen or enterprise with all necessary procedures and formalities concerning public services. From an IT perspective, a point of single contact is first an intelligent, interactive portal and second a case manager with the ability to serve the intent.

In a case study carried out with public research institute, an ontology and formal lexical grammar for the support of "move of residence of a family" was developed and implemented. The person would enter an intelligent form and by knowing who this person is, what his professional circumstances are, what his family is looking like etc. the system would make recommendations on how to best perform this task.

In order to implement smart technologies on a larger scale, a concept of Digital Society Platform has been defined – bridging between the policy, the interoperability and the technology layer. In order to get to smart decisions, it is necessary to gather data. The sources can be various: it can be sensors or completely unstructured, like natural language texts. The ability to pull value from massive amounts of data and respond to real-time information is becoming a crucial competitive differentiator in all markets. Another important building block is new process models: The maturity of business process automation varies widely depending on the industry, the complexity of tasks and the processes. There is lots to do in this area. Service quality is another aspect and which concerns every layer of the future Internet. Many opportunities exist for accelerated improvement in the IT service system.

Supervisory Control And Data Acquisition mechanisms have been widely used in various critical infrastructures, providing the first example of multi-tiered containment. The Internet of the Future has to be secured like such a business critical infrastructure.

Stimulus Investments for an agile Digital Society and Economy in the twenty-first century must leverage the elements of modern infrastructure. Converging the digital, physical, natural and human infrastructures will help to achieve smart information discovery and decision making in any industry. An integrated network and virtualised computing power infrastructure is the essential foundation of any such globally-integrated ecosystem and will support future smart e-Government services for citizens and businesses.

A question that came up during the **Q&A** part of the presentation was weather the concept of smart governments takes into consideration any participation of citizens. Margarete Donovang-Kuhlisch explained that e-Participation and the fact of reaching out for all citizens is addressed by the concept of a point of single contact, aggregating all the services the citizen needs in a given moment, and the converging networks. The point of single contact needs to be reachable to different modalities. Multi-modality is a very important aspect.

GÉRALD SANTUCCI, Head of Unit "Enterprise Networking and RFID", DG INFSO & Media, European Commission, provided - with his usual eloquence - a most interesting

Guide Through the 2009-10 Work Programme: Focus on Calls 5 and 6

It is important to look on semantics – and in particular on the European language used in R&D programmes. For instance, in FP 3 the EC talked about tasks, in FP 4 the tasks have become key actions, in FP 5 the EC talked about action lines and since FP 6 the EC talks of objectives and challenges. All these words have some interpretations and, at least if you want to participate in EU R&D programmes, it is important to understand what is hidden behind the terms used. In fact, the EU had moved from prescriptive R&D to more focussed R&D.

The FP 7 is structured around seven challenges, three of them are technological (network and service infrastructures, cognitive systems, interaction and robotics, and components, systems, engineering) and four are more applications' research for libraries and content, healthcare, for mobility and sustainable growth, and for independent living, inclusion and governance. The actions "ICT for smart factories", "ICT for Energy Efficiency" and "ICT for Full Electric Vehicles" are new actions that concern different departments of the EC and are funded by different budgets. They are basically PPPs (Public Private Partnerships).

The Challenge 1 "Pervasive and Trustworthy Network and Service Infrastructures" is to look at the technologies that will shape the Internet of the Future. It is about capacity, mobility, flexibility, scalability, security, and the resilience of networks. It implies a large budget and does not only concern work on the architectures of the future but also the Internet of Things, the Internet of Services and the Internet of 3D media as well as all the technologies that need to be developed in order to provide trust, security and trustworthiness. The Smart Planet Concept can be considered as a pioneering application of the Internet of Things.

Challenge 2 "Cognitive Systems, Interaction, Robotics" focuses on robotics and translation systems. Challenge 3 "Components, Systems, Engineering" is about technologies responding to the trend of miniaturisation and diversification and focuses mainly on the development of new types of devices of the scale of nano-technology.

Challenge 4 is about "Digital Libraries and Content". The Challenge 5 "Towards Sustainable and Personalised Healthcare" focuses on ICT for healthcare. This is not new, because the work on ICT for healthcare started 20 years ago but since then the work moved from treatment and diagnostics to prevention, from institutional care to personalized care, and from medical R&D to bio-medical R&D.

Challenge 6: "ICT for Mobility, Environmental Sustainability and Energy Efficiency" focuses on mobility and sustainability. There is an increased focus on this kind of research these days and it is certainly something very important for local governments.

The PPP "Factories of the Future" are about R&D in production technologies, materials and ICT, including "smart' factories" (agile manufacturing and customisation), "virtual' factories" (global networked operations) and "digital' factories" (optimised design of systems and processes).

The ICT part of the PPP "Energy Efficient Buildings" is about the monitoring and control of energy consumption, advanced lighting systems and smarter and optimised interconnections with the power grids.

The last PPP is on "Green Cars". By 2015 there will be one car for 6 people on earth and it is most important to see how cars can be made greener. This justifies the large budget made available for this work.

The FP 7 is now at call 5. The fifth call opened on 31 July and closed on 26 October 2009. The sixth call opens on 24 November 2009 and will close on 10 April 2010. Call 6 will call on actions for challenges 2, 4, 5 and 6. At least the last three challenges should be of interest for local governments.

Another Framework Programme was launched two years ago. The CIP – Competitiveness and Innovation Framework Programme -- does not focus on R&D. CIP has three "arms" – one of them is the "ICT Policy Support Programme – ICTPSP. The work programme for ICTPSP is not published every two years, as it is the case for R&D, but every year. The work programme for 2010, which is not official yet, will include a major action on smart cities.

During the following **Q&A**, a question about the relationship between RFID and the Internet of Things was raised. In his answer, Gérald Santucci stressed that the EC does not support any longer research on RFID. RFID today is a mature technology and Radio Frequency Identification is more or less what will be come after the bar codes. The work supported on RFID today is more about regulation and policy. The EC has issued a recommendation on privacy and data protection aspects of RFID this year. However, in terms of research, the EC shifted from mere RFID to the "Internet of Things". The Internet of Things, even if it will include a lot of RFID technology, will be much more than that. It will also include sensors, the wireless sensor networks, the smart devices and the nano-technologies. It will be a combination and sometimes an integration of different technologies that will allow billions of objects to "talk" to each other. The Smart Planet presented earlier is perhaps the first application in this context. However, this is a development that will continue during the next 20 years.

VICTOR PÂNZARU, OIPSI Director, Ministry of Communications and Information Society, Romania

Information Technology and Communication
for the Private and Public Sector

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

RADU COMSA, Counsellor to the Ministry of Regional Development and Housing, Romania

Regional Operational Program 2007-2013

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

MARIUS BOSTAN, President, National Foundation of Young Managers FNTM, Romania

Enriching the Managerial Culture in Romania

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

The Future is Green

BRUNO PENNINO, Public Sector, Marketing Executive North East and South West Europe, Global PS Marketing Leadership Team Lead, IBM, Italy, [www.ibm.com], spoke elegantly and brilliantly on

A Smarter Planet is Greener

The green agenda is increasingly important for companies and public institutions at all levels. While we all try to be good citizens, it also makes economic sense. Technology in general and ICT in particular are key enablers of reducing our carbon footprint and help manage the energy supply. An overall strategy considers our supply chain design, how our facilities are built and managed, how employees reduce their use of resources, how ICT saves resources, and the information that must be monitored to control the process and achieve other related objectives. ICT can play this enabler role for the whole enterprise value-chain in the different industries, as governments play a pivotal role, to understand how ICT can support the reduction of the enterprise's environmental impact, leading by example and encouraging virtuous behaviours.

One question that we may ask ourselves in this economic downturn in which we find ourselves is: does green still matter? This is a question to which we need to find a collective answer. In this paper we shall discuss resources - not just energy and carbon that are the key ingredients when we talk about being green - but also about water. Water is a critical issue as so much energy is spent on getting drinkable water into our houses. Water consumption has a direct impact on our overall energy consumption and it is important to try and reduce water consumption in our daily lives.

Moving to what can be described as the benefits or the value-added implied in 'going green'. We have carried out research in this area and have come to the conclusion that there are three major drivers that are encouraging companies to 'go green'. The first problem is that resources are costing more and more, so lowering overall costs is becoming a necessity. At the same time we see many scarce resources and we have customers that are unable to run their manufacturing businesses for lack of water or energy supplies to run their facilities. So it seems clear that resources are going to become even more scarce, in some places more acutely than others.

Another driver to going green in connected to perceived need to get the balance right between reputation and regulation. There are some jurisdictions that are issuing rules to reduce carbon emission levels or to be greener in a broader sense. At the same time companies are very concerned regarding their reputations and they see it as important to follow these rules and regulations. They want to show to the public at large how green they are, how 'good' they are.

The third driver is concerned with how we can leverage this fact, how we can create new products, new markets. There are opportunities that need to be captured. What we see is consumer behaviour changing. This is an important factor to take into consideration.

What needs to be done in order to realise these benefits? Essentially, we need to look at the value chain end-to-end. This is an important point as the value chain can have hidden costs and usually these costs are not inside the company that produces the products. They are outside the organisation. Alternatively, there are advantages you can leverage.

What should be done for an organisation to achieve this green environment? First of all they need to build a green infrastructure, an infrastructure that uses less energy. In addition, they need to develop sustainable solutions that allow their organisations to use less and less resources.

The last step, going a little bit beyond the organisation, is how we can implement intelligent systems that can integrate different subsystems in the industry, and how this can deliver benefits.

Last but not least, we need to manage green information. Companies need the relevant information to run each of these elements: the infrastructure, the solutions and the systems. At the same time it is important if, for example, you have a very specific target to reduce your carbon emissions. You need to have specific information about this. Looking at these three elements in a little more detail.

IT infrastructure. We need to redesign and restructure our IT industry in order to reduce its needs in terms of energy. Other key infrastructures include buildings, facilities. We need to have better systems to monitor how well we maintain our facilities, how much waste is generated, how much paper waste is generated, and how well is your office space used? Everything should be included in the energy management system to make sure they are coordinated.

Solutions. Starting with the strategic questions, if sustainability is part of the strategy of the company, half the job is done. If you include in your strategy that sustainability is a key ingredient that needs to be taken into account and optimised when you prepare your business model, you are likely to see the benefits in terms of a reduced environmental impact as well as for the company.

The other element is when the organisation manufactures products or think about services, it is important for them to know how they can use less resources, and not just look at when the product is within the organisation but looking at its entire life-cycle of the product. This is where the hidden costs are, not just inside the company. It is also important to look at the entire operation to see how less resources can be used: water, energy and so on.

It is necessary to look at the supply chain and distribution. We are not talking here about sustainable procurement which is an entire topic in its own right.

Last but not least, the people that work in the organisation. People need to be educated, they need to spend less energy and to know how to implement best practices. From an organisational point of view it is necessary to implement the collaborative tools to allow people to work remotely for example. implying that less money is spent travelling and there is less demand for office space. The positive consequences of this are reduced energy needs in terms of cooling and cleaning offices. It is a broader approach that really delivers the benefits.

Energy can be saved through improved water consumption practices. We can also consider how we might have a more efficient energy system if we can control all the sub-systems that

are there like the energy needs of houses or alternative energy production that require inter-operability between all the subsytems. We can also look at the traffic systems, starting with traffic monitoring and forecasting. Road user charging has been experimented as a way of limiting car use and it is starting to change the behaviour of people.

Companies that want to reduce their carbon emissions need to put in place a carbon emissions management information system that essentially covers four areas. One is what information do you already have to decide. What do you need to decide what are the actions that need to be taken? What information do you need to execute the actions? Are you communicating your green efforts to the stake holders because reputation is so important?

What can be done by the government and the private sector? What governments can do us understand the role of IT. IT is a CO2 consumer but only accounts for 2% of emissions. The real role of IT is this: to enable all the other industries to use less resources and we have seen how the instrumented and intelligent world can do this. Governments should lead by example. Governments are a big contributor to GDP so if they save energy and resources it is a big save for everyone. It is also important to promote standards. There are two kinds of standards, one that is able to measure efficiency in general, so we can measure improvements of our time, we can exchange information, we can talk the same language. But governments can also set standards for interoperability. For subsystems to inter-operate a standard is required to make this happen.

So what conclusions can we draw from all this? If you change a few things in your organisation you can save a lot of energy and resources. So let's do it. It's something we can do - and it enables us to save money.

Innovate to maximise the use of the resources required to produce your product, to get your product out to the customer. Look at the entire value chain. Look at the information flow you can get from anything so you can change behaviour, change the system, and better the system.

The most difficult challenge is to define a new business model to capture new and changing trends in customer behaviour and make your business more profitable.

What can IBM do? IBM can address all of the issues we have discussed here but one of the most important areas is that we can help companies to segments each of the operations and for each of the steps we can monitor how many resources are used: money, water, energy, how much carbon is used. This is the basis on which we can redefine processes in an organisation. If there is a will to reduce the use of energy or carbon emissions you need to start this way and then you can start to see the results.

LORIS DI PIETRANTONIO, Policy Officer, ICT Addressing Societal Challenges, DG INFSO & Media, European Commission, gave an excellent presentation and background on the EU's issues and concerns in the specific arena of Green IT:

The European Commission's Framework for Environmentally Responsible ICT

The European Commission is establishing a framework for Environmentally Responsible ICT to encourage energy efficiency, smart technologies for responsible use of energy by consumers, and the uptake of energy efficient technologies. The recently adopted Commission Recommendation identifies specific actions for stakeholders to exploit the enabling capacity of ICTs to contribute to energy efficiency. Challenges and ways forward will be highlighted to stimulate behavioural change in individual behaviour through increased information ICT provides consumers. Individuals will be helped to understand their energy consumption through measurement systems and help to reduce their carbon footprint. Member states and regional authorities will be engaged to encourage the use of smart technologies and create conditions to reap the benefits of energy efficiency.

In this paper we make three main points. The first is the challenge and opportunity of energy efficiency. The second is what is the opportunity that ICT can unchain? The third is what is the approach at the European level that we are trying to foster to make the impossible possible?

When we deal with the issue of sustainability we have to think about one thing: in 2050 the population of the planet will be 3 billion. Resource use is already strained today so there is a major challenge to know how we can do more, how we can keep up the pace of economic and social growth using less resources. The key resources are the resources we don't use. They are the resources we refer to as "nega-joules" or negative joules.

One of the triggers what was the oil shocks of the 1970s. So after the first oil shock we can detect the first shiver in terms of our energy consumption patterns. By this measure have made 50% energy savings and this is the key resource we need to harness in the future. This also has an impact in terms of emissions. Emissions are steady because you have energy efficiency systems in place.

ICT can save up to 15% of total energy use by 2020. This is a high target but it is achievable provided that every system embeds 'smartness' at every single step and chain of the system. This is true with heating and lighting for example at home where consumption rates are altered. It is also true for power grids, smart grids, in supply chains, in transport logistics and in manufacturing.

If we consider key demand factors, especially at the level of individuals who account for at least a third to total energy consumption. We need to confront the issue of how to develop smart buildings in terms of heating, lighting, boiling and cooling. These are the area that we are trying to tackle right now at the Commission.

Energy efficiency measures are ongoing in the ICT sectors. The major consumption is in the telecom networks, data servers, TV sets and PC sets. These sectors are producing more emissions not because they are more inefficient but because demand in rising rapidly, especially in developing economies and countries. This poses another challenge: how can we cope with increasing demand for products and services in a sustainable way?

The actual consumption of energy by the ICT sector in Europe is 8%. This corresponds to 2% of greenhouse gas emissions which is comparable to the airline industry. By 2020, if current trends remain the same, consumption levels will reach 10% and emissions 3%. There is hope, however, which is embedded in the very nature of ICT which reflects Moore's law whereby computing power increases every six months. Prices come down and the other effect is that energy efficiency improves throughout the chain provided there are some triggers.

This also has ramifications throughout the rest of the economy and our sentiment is that if we have an energy-efficient ICT sector, we can trigger energy efficiency throughout the chain. Even if there is a relative negative impact caused by the ICT sector, if systemic actions are taken in the rest of the sectors, this can prove beneficial in terms of energy consumption and generating this key resource which is this energy-saving resource.

We need to move from the supply side, from a technology-driven solution only to the demand side. ICT is key in this regard because it not only allows for the creation of smart technology which is smart on its own but, more importantly, making the decisions of the consumers and the users smarter. This is the key shift. How to use ICT to empower final users and businesses to improve their energy consumption throughout their own value chains.

There are two aspects of the approach we are trying to develop at the European level to promote this change. There have been a number of communications on these issues but the two key actions are the public-private partnership on energy efficient buildings, which is a program with a budget of 1 billion euros in research, and which has just been launched within the European recovery of the European Commission, to fund more energy efficient buildings. Second there is the recommendation which encourages key stakeholders to address the energy-efficiency challenge, namely in respect of the ICT sector. The ICT is responding to this recommendation by setting common measurability frameworks by 2010.

One of the challenges here is that every ICT company has already embedded in its own value chains energy efficiency targets. However, this is very spread out across the sector. Hence, one company does it one way and another company may do it in another way, and it's very difficult to have a level playing field of common achievements throughout the industry. It is good to see that the industry recently committed, through Digital Europe and Tec America to set out a common framework for measurability by 2010 but also, by 2011, to set targets for energy efficiencies. In order to achieve this famous 20% energy efficiency by 2020 by as early as 2015. This is already possible in the ICT sector from what we gather from industry sources because of the very nature of the sector and the capacity of segments to act together.

The other plea to the member states is especially regarding the use of public procurement as this is directly linked to the issue of ICT efficiency. Public procurement is key in encouraging and creating these markets, in deploying small metering, that is to say small meters that empower the consumers to choose their best energy packages and to choose the time and use of their energy equipment.

Another problem is the difficulty of measuring impact and efficiency. In this area the Commission is planning research programmes and activities in creating activity simulation models that can subsequently be used for public procurement in terms of highlighting what are the best systems and what are the value chains.

LIDIA CAPPARELLI, Head of the Sustainability Unit, Consip S.p.A., Italy, [www.consip.it], provided a noteworthy and enthusiastic presentation on

The Future is Green

Consip is an Italian government owned corporation that manages government IT services and IT projects for the Ministry of Economy and Finance. Through the Program for the Rationalisation of Public Spending and the Green Public Procurement (GPP) program, Consip rationalises public expenditure on goods and services using e-procurement tools and methods taking into account environmental factors throughout the products' life-cycle, encouraging development of eco-friendly products. When government bodies buy green, through Consip, this stimulates environmentally friendly technological innovation in the market. The use of ICT to encourage green practises is strategic to these efforts. Consip provides simplified lifecycle assessment for IT equipment, demonstrating that buying green is cost effective.

GPP allows Public Administrations to make green decisions through the adoption of green sourcing practises. Procuring green goods and services saves money over the product-lifecycle primarily due to reduced energy costs. Public Administration suppliers increase their competitiveness by expanding their range of eco-friendly products and services while complying with environmental protection standards. These processes impact the entire supply chain.

Consip is the national agency for procurement in Italy. This presentation will focus on what is being done in Italy to persuade public administrations to buy green. Consip helps the Ministry of the Environment and the Ministry of the Economy in respect of the adoption of national action plan. This is very important for Italy because legislation has been emphasising the importance of green procurement. However, it is not an obligation yet. We have our national action plan which is not an obligation, rather it is a very strong recommendation to adopt green specifications in procurement.

Going green is not obvious and Italian public administrations do not feel confident about green procurement because it is not easy. Moreover, legislation implies rules that are not so simple to abide by. Added to this the environment is not so interesting in the sense that if you think of CO2 production - CO2 emissions - this is not something that attracts people. On the other hand if you encourage administrations to think in terms of the economic effect then they are more likely to understand the importance of thinking and applying green procurement.

So we started with an analysis of the life cycle assessment in our framework agreement into the electronic marked place. What we did was to analyse the design phase, the production phase, the user phase and disposal. In the area of ICT the most important phase is the user phase. It is the easy phase where you can compare the economic benefits as well as the environmental benefits. We started to measure the effects of green procurement and the impact of forcing public administrations to buy green. Administrations were given advice on the convenience of buying with PCs with Energy Star requirements or other energy labels.

A simple examination was carried out of this and the life-cycle assessment was simplified for public administrations. Public administrations were subsequently give the results of this evaluation. For PCs the replacement rate for one year which is three hundred thousand PCs per year per public administration, the results revealed that a saving of 10 million euros could be made with a saving of 36 000 tons on CO2. This is interesting because only two phases

were compared - the sleep phase and the off phase of the computer. But we know that either phase is the most important and the most effective to compare the energy-efficient use of PCs.

Another example is the Duplex Unit which is a comparison between double sided printing versus single side. If you compare the use of double sided printing you can make a simple calculation because you can save half the quantity of paper. It is an easy measurement. You can also make a calculation in terms on tons of paper saved. All the devices installed in public administrations in Italy consume sixty thousand tons of paper per year. This corresponds to sixty six thousand tons of CO2. This also implies considerable savings. Sixty million euros can be saved each year just using double sided printing.

What if we just print less? Twenty percent of paper is wasted in the printer when we print an email which we don't even use. It is paper that goes straight into the waste paper bin.

In terms of toners we can save 107 toners per year. At a national level this represents one million toners representing a cost of 53 million euros a year. This something that is very easy to understand. Speaking about green procurement is not an easy way to convince people. If you think about the environment and if you care about the environment but you are also under pressure to reduce costs, you may find it difficult to be convinced of the advantages of green procurement. But if you think about it in economic terms and its environmental impact you can start to see how effective it will be.

We also measure the effect of our electronic marketplace. From 2004 to 2009, five years in which the electronic marketplace was in use, there were about 200,000 orders. More than 300,000,000 were saved in this area compared to full costs. This evaluation was carried out by CNIPA which is the Italian IT authority. One hundred tons of paper were saved that is to say over 20 million pages. This is a very good example of how to use ICT technology while saving money.

Finally, we are obliging public administrations to use ICT services. In our strategy for travel agencies we are encouraging public administrations to use video conferencing instead of paying for travel by air of land. This is important because travel policies of public administrations will find an alternative solution to travel or not travel at all. Video conferences will replace the need to travel long distances to attend meetings by train or plane or car.

This, then, is the role that CONSIP is playing in Italy. CONSIP is forcing pubic administrations to use ICT because it cares about the future and it is working in the public interest to protect the economy and the environment.

MARIUS OPRAN, Member of the Executive Bureau European Economic and Social Committee, Romania, shared with great know-how and awareness some of the challenges related to

Fighting Against Global CO2 Emissions,
Including the Contribution of ICT

ICT generates up to 2% of the world's carbon emissions — as much as the aviation industry — and growing power consumption of ICT equipment can have serious consequences for the affordability. The ICT industry must embrace power-efficient technologies to reduce the environmental impact of the manufacture and use of ICT equipment. Conversely, ICT can be used to reduce global carbon emissions, including the carbon emissions of ICT. Some have taken it upon themselves to improve the PC's overall energy efficiency by 90% by 2010, following the example of Europe's light-bulb manufacturers. Nanotechnology represents a new tool for the development of future generations of green hardware and home appliances and could contribute to reducing emissions by up to 20% by 2050 in a variety of areas.

Two years ago I was responsible for issuing the position document of the committee regarding the role of ICT in sustainable development within the European Union. After the first and arguably the most important chapter which proposing to provide wireless coverage for the entire territory and to create our own Internet, the document focused on the role of ICT, in particular regarding the issue of how to build a green ICT and how this green ICT can also be a major factor for greening the rest of the European economy. In the opinion of the Committee ICT cannot significantly contribute to the sustainable development of the European Union economy, to green the European Union sustainable development process without using new state-of-the-art technologies. This means to say that before the European economy takes this first step forward, the ICT sector needs to modernise itself. One bit step forward that has been taken is the large-scale production of CMP processors.

As a basic action for all these processes under development the Committee considers that a permanent self improvement of the ICT sector is a need at this time. We are referring here to the core applications of the ICT sector: the Internet, broadband, wireless coverage, and about multiplexing and networking.

The second target should be to neutralise the negative effects of using ICT hardware, and to reduce, between now and 2012 the consumption of hardware that is not less than 50%. This means for the European citizens that they will benefit and can use very affordable applications, such as networks, mobiles, seamless, scalable, embedded into the things of everyday life. In many cases these applications will be invisible to the users. They will use them unawares. They will become a part of their day-to-day life. These applications will be intelligent and personalised. They will be rich in content. They will also be real tools based on the visual interaction and multi-model interaction.

Why is this desirable? Because of the rapid growth of web-based services. At present the two million servers of the five major search engines have consumption requirements of five gigawatts, i.e. the regular consumption of a city with a population of approximately ten million inhabitants on a hot summer day with air conditioning systems running. If this performance measured as watts of electricity consumption required by today's computers is not improved, there is a risk that the running costs of the computers could end up costing far more than the initial cost of the hardware.

The is also a risk, if the energy consumption of continues to spiral out of control, this can have very serious consequences for the overall affordability of computers.

To illustrate this with an example, 40% of the electricity power for home and domestic ITD systems is consumed while the products are on standby. This is something that most of our citizens are unaware of. They are unaware of how they can cut their electricity consumption during the night or when they are not using their equipment. The crucial precondition for controlling and growing this sector we consider to be how to bridge the gap between ICT experts and political decision makers from a political and economic standpoint. How can we neutralise the negative effects of using ICT hardware? We have drawn up a set of recommendations in this regard.

Finally, we have drafted a set of recommendations for ICT leaders about how to face this contest. How to require hardware manufacturers to better understand and take into account the life cycle of the products they produce. How to reduce CO2 emissions and improve the effectiveness of recycling. A very significant goal for the Committee is concerned with the new domain of nanotechnologies. We talking here about the possibility of reducing greenhouse gas emissions by up to 2% a year. This is the main challenge in the area of nanotechnologies.

Finally, we have proposed three new programmes within the European Union. The first concerns intelligent energy, the second intelligent buildings and the third regarding intelligent transport.

JOHN FRIESLAAR, CTO for Key Accounts in European Region, Huawai Technologies Co, UK, , [www.huawei.com], provided an excellent and very rich overview

Using Telecommunications to Reduce Environmental Impact

Telecommunications based solutions can help to reduce the effects of climate change by reducing the demand for energy. An end-to-end view is developed, highlighting the various points across a communications network where positive action can help to alleviate energy use and drive up services that telecommunication consumers can adopt to improve efficiency. Actions that vendors are taking to develop greener products are highlighted, together with the reasons these actions are critical to realise a broadband economy.

One of the things we need to think about in the context of this discussion is that everything needs to be done on a cradle-to-cradle basis. Looking at little stove pop areas and musing about how this will solve the problem is not big enough. We need to remember that this is a social problem and people need to be educated about the way they do things in a more and more sustainable way.

From the telecommunications perspective the future looks good. When we look at some of the trends, there are things like the smart grid, broadband Europe, the deployment of Phanto and LT and lots of smart government initiatives. The problem is we are continuing to grow stuff. At the same time there is talk of de-materialising. But we really need to focus on doing both together. When we start to look at growth trends across the industry, and if we continue to allow five, six, seven operators to compete in an industry, we're putting out five, six, seven types of equipment even if the equipment is on the way to becoming 80% efficient, we're actually increasing our problem over time.

Two things that need to be focused on:

1) What are the industries that we need to focus on? Where is the most carbon being emitted today? Without pointing a finger, too many industries - industry, transport, electricity and buildings which are the biggest emitters that we have today.

2) The broadband value chain, whether that be mobile, or fixed line broadband. At the end of the day someone is going to invest money and a customer at the end of the line is going to use that service. When we look at the Telco industry and the telecommunications infrastructure, that piece in the middle is the piece that is often stated as being 2% of carbon emissions on a global basis today.

The problem is we probably have a knock-on impact across the ecosystem of about 15% to 20% depending on which way you look at it. It is because of the promotion of our services that we sell more computers in the home. We sell more boxes and pieces that add to the communications infrastructure. Then, as we look across this end-to-end value chain we have to talk across the value chain. it is no use talking about our stove pipe. We need to start thinking about how we created benefits across the value chain.

Something that is happening in industry today is that we are becoming a utility service. Water is a utility, electricity is a utility and communications are fast becoming a utility. I would never think of having four water pipes running into my home - one for bathing, one for drinking, one for watering the garden and maybe one for washing my car. What I want is one single pipe. Today, all of these industries are looking to create a smart environment. Everyone wants a smart meter at the end so they can put it on some back-end processing so they can do something with it. I do not think this is a green way forward. I think we have to think about how we're going to leverage each of the infrastructures to benefit each of the industries.

We are already starting to see the electricity making waves about not putting smart metering on the communications networking because of the problem with user profiling. They do not know exactly how to use how our data.

There is a tsunami of data that is going to overwhelm us. There is about a 10 to 100 fold increase in the amount of information that will be put on-line in the next ten to twelve years and this is going to create a lot of issues about how we develop this ecosystem. If we look at the current ecosystem we see that there is a single monopoly company taking it 0.1, or one of, it has a certain volume of emissions. If we look at things like shared infrastructure it maybe gets 1.2 or 1.5. But if we allow pure competitive environments we're going to end up with more and more carbon emissions over time.

What we need to do is find a way whereby we can strike a balance - somewhere between making it greener and allowing some level of competition and innovation. We have to have policy looking at encouraging minimisation of infrastructure deployment. We cannot continue to deploy infrastructure willy nilly. This is one of the reasons why we is developing a base station which allows all technologies from a wireless perspective to be operational on a single platform which, moreover, allows a virtualisation of services.

If we are going to look at look at wireless becoming the alternative to broadband fixed line, a fixed line GP on fibre link gives us 2.5 giga bits. If we're looking at 50 megabits per user that is about thirty users. On a wireless systems you are looking at deploying at least fifteen base stations to give those same users the same amount of throughput capacity. Wireless on its

own is not the answer, no matter how much people start saying that. You have to have a hybrid systems of fixed and wire lines.

Potential solutions for some of these industries -- transport industry. If we consider the number of people attending a conference like the Global Forum, the figures add up quickly. There are approximately five hundred participants most of whom will have travelled by plane. This corresponds to around two tons of carbon emissions per person. Why can't such events be held by video conferencing? What's more the two hour drive from the airport to the convention centre may be as much as 5kg of carbon emissions each way. When we start to look at events this way, and the environmental impact they have, we can start to see the logic of video conferencing more clearly.

In the area of e-government, why I go down to the polling booths and stand in line for two hours before being able to cast my vote? Why can't I do it from my home environment?

Today Facebook and Twitter are being used in a very smart way. People are looking to these two applications to do their marketing online. Instead of spending say 300,000 on carrying out polls and talking to people, sending out brochures, running campaigns etc. the likes of programmes like Facebook are creating a fanbase. These are fanbases that allow people to have direct conversations with the consumer.

These are the sorts of things that ICT can enable. It can allow us to create that end conversation with the end user which gives us up to a 50% hit rate versus a 1% hit rate achieved through the distribution of advertising material.

There are ways that we could achieve this in the electricity and energy industries through smart metering, and in the building sector with smart buildings.

Over time organisations are going to rely more and more on digital communications. We need an education programme that will educate people to the benefits. We cannot go on talking about it without educating people because what we're ending up doing is creating people who have got their backs up against green. Already we're seeing people that see green as a bad word. We need to make them see the benefits of it.

We have the ability in the Telco sector to do this and to drive growth exponentially. Key to this is going to be partnering and vitalisation. Regulation has to drive us to that perspective. Openness, freedom and competition are to be encouraged but not at any cost. We have to recognise that our industry has a certain amount of carbon so let us focus on constantly focus on squeezing that balloon down so that people become greener all the time.

We can be green but it needs coordination and a common vision across the world.

VARUJAN PAMBUCCIAN, Member of the IT Commission of the Romanian Parliament, Romania, provided a most interesting insight in

Intelligent Green Architectures

The virtual servers and thin-client architectures, a paperless environment, and the DC intelligent grid are all both environmentally friendly and cost effective, and represent sustainable, long-term strategies for green ICT. These approaches can be implemented in parallel and enforced by similar action plans.

The subject of Green IT is a very large. For this reason this paper will focus on three topics. These are the new ICT topologies, the intelligent DC Grids and the paperless. We consider that these three areas in which we can talk about green IT are making a great deal of sense from an economic point of view. We are passing through an economic depression in which one of the crises, the second one to appear, concerned operational cash. This is very important and very useful for Green IT. Increasingly, companies and governments are going to understand that talking 'green' is not just about talking about nice things, it is also about money.

Probably, the most important vector of the IT industry today is Telco. Telco is increasingly selling IT. What is happening in the area of Telco. If we consider a metropolitan area and take a look at the network inside that area. The old networks were switching networks and this was their only functionality - to make a link between two terminals that are talking point to point. In today's networks we find several new elements: storage, processing and, of course, switching.

Consider a computer. What is it? It is no longer a telco network. It is a computer. The way we think about computers is changing and the way we think about terminals. We may recall the old digital computers, the mainframes, that had these topologies inside. What are we missing? Something that is coming quite soon. The operating system. Google is doing it. It is based on the Chrome processor and it is announced to appear soon.

Why is it better to think like this? Why is it better to use the metropolitan network. First of all, because it makes a very important switch from a monopoly of services based on a monopoly of infrastructures to a competition between services based on open infrastructures at the metropolitan level.

The terminals are cheaper in terms of their consumption and in terms of capital investment. It started with a processor invented by National Semi-Conductor. AMD bought it, named it GEOD and killed it unfortunately. Fortunately Intel succeeded to put on the market a new type of processor. It was not as good as GEOD. The consumption of this processor is very low at 0.9 watts and the computer based on such a processor is consuming 3.5 watts. This is a huge economy in terms of money. It is green but most important of all, it is a huge economy in terms of money.

Increasingly, especially since solar energy dropped in terms of capex, and now it looks as good as wind did before, the DC grid is appearing as a very good solution. It is a very good solution because the DC grid no longer loses energy by converting it from high-voltages to medium voltages to lower voltages. It has another hidden beauty. It can be produced everywhere, stored everywhere and if you look inside the grid you will observe that these grids are becoming more and more important. This is another space for the development of IT.

What should governments do? The first, and maybe the most important thing that governments should do is nothing. If governments don't do anything it is better. And, above all, they should do nothing in terms of Internet. If we want to see that these metropolitan area networks are developing, we should never regulate Internet. We should allow advertising to support the development of the Internet because, at the end of the day, this is what the end user wants: cheap access to free content. This cannot be done without the support of reinvented advertising because today's model of advertising is not working very well.

Second, governments should invest in themselves, invest in lowering the opex. They should make a rapid transition to the paperless paradigm. To do this, they should understand, first of all, that the only thing that is missing there is the identification, the non-repudiatable reputation of each citizen's company's institutions. To do this I think we have to take a step back and to remember the time when the UN tried to define a uniform regulation to do this. Uniformity is very important because if we are talking about processes that are over networks, they have no borders and it is a case where it is important to have uniform regulation.

PETER HOPTON, Managing Director, VeryPC, United Kingdom, delivered a visionary and very articulate presentation on

Green IT Technology

In every economic strategy there are goals for the growth of digital and creative industries. Green ICT is fast becoming the next digital growth market and VeryPC demonstrates that smaller, innovative suppliers can provide innovation, savings and help stimulate the European economy. Innovations showcased will be BroadLeaf – an ultra-sustainable PC, Iceotope – an advanced liquid cooling solution for data centres and PecoBoo a face detection power management application.

In every economic strategy there are goals for the growth of digital and creative industries. Green ICT is fast becoming the next digital growth market. Very PC demonstrates that small innovative suppliers can provide innovation, savings and also help stimulate the European economy. In this paper we showcase some innovations and discuss how we see green IT and how we see the future of green IT.

Green IT can be seen as three separate things that each have separate motivations for the end customer and separate approaches.

There is eco-efficient ICT which is the reduction of carbon dioxide and emissions for IT by reducing their energy consumption to do the same job. It is a quick win. It is an operational cost saving and there are a variety of technologies on the market that demonstrate this very effectively.

There is smart ICT. This is the use of ICT to make savings elsewhere. This is a very significant area but it requires changes in human behaviour and it requires a lot more education and advancement. But it is something that we should definitely concentrate our attentions on in the future.

Then there is ecological and material sustainability, e.g. embedded carbon footprint in materials. It is also things like toxic materials and recycling and impact on landfill and the environment and pollution. This is part of green ICT but it is difficult to justify and kind of

financial reward by an organisation procuring equipment that has better ecological and material sustainability. It is something that is an ethical issues.

These are key areas to think about and each area has a separate approach. One of the things we have tried to do at Very PC is to make a PC that was the most sustainable PC on the planet. We called it Broadleaf. For this we established an end-to-end design methodology to minimise carbon dioxide emissions, not just in the use but also in manufacture.

The important thing for us was not to make a machine with an Intel Atom processor but to make something that was very high performance, something that would turn itself down and use less power when it wasn't in use but yet had all the computing power you would expect from a high performance PC.

The way we look at this is there is no point having a compromise for green. What you need is an alternative that's greener. It might cost a little bit more but it is a cost that can be brought back in total cost of ownership. The first thing we decided was that we need to reduce the size of this piece of equipment and the quantity of material. We adhere to the idea that small is beautiful.

There is a 10:1 rule that applies to most materials that are used consumer electronics. Ten kilogrammes of carbon emissions are required for every one kilogramme of material. This is the case for steel, aluminium, ABS plastic and most of the materials you find inside PCs.

Then we look to reduce the energy consumption of this unit in operation so that when it was on it was using less energy but, at the same time, when there is a need for extra computing power it could do this by drawing on more energy. Very important in our view is to maintain the performance level expected.

One of the ways we got the embedded carbon footprint of this piece of equipment down was that we discovered that aluminium has 61 megajoules that goes into one kg of aluminium production. Most of this energy is electricity. So if you source aluminium from an environment where the energy that goes into its production is from renewable resources you can reduce that 10:1 ratio to a 2:1 ratio. Aluminium is very easy to recycle and has a very low melting point and a very low amount of carbon emissions required to recycle it. We also look to eliminate nasty substances like polyvinyl chloride and brominated fire retardants. Brominated fire retardants were very easy to remove because we were using aluminium instead of plastics so the fire retardants were not required as much.

Then the question was how to reduce carbon emissions elsewhere. One of the places is in the monitor. We do not be make monitors but we do make computers and we have equipped our monitors with a face detection application called Peekaboo. Its aim is to determine if the user is looking at the screen or at his desk. If the user is not looking at the screen or sitting at his desk then our aim is to deactivate it. And if the user comes back to the desk and looks at the screen we turn it back on again. If the user has gone for a longer amount of time we can put the computer to sleep.

The reason we implemented this in the first place was that we realised that a lot of our customers were deactivating their monitor switch-time because they were watching things like online films - Youtube etc - and as they were not touching the keyboard or screen their monitors were switching off.

The final innovation we want to discuss here is a British company called Isotope which have a highly innovative liquid cooling solution. Isotope is a method for getting heat out of servers as efficiently as possible while still using standard commodity hardware.

VeryPC is a small innovative company in the UK and our aim is to showcase small companies as the way to introduce into the whole green IT agenda. There are many companies like us throughout Yorkshire in the UK and throughout the world. Yet we seem to be submerged in the greenwash of a number of larger players in society. At the moment Very PC only supplies to the UK market but is hoping to find partners in the EU.

One the best things about small companies is that you tend to find of emotional drive and ethics where people are committed to their goals and to what they want to do. For Very PC there is a significant ethical commitment to reducing global CO2 emissions both for IT and using IT.

DANI FLEXER, Consultant, Datacentre Optimization, United-Kingdom, brilliantly demonstrated some very interesting facts about

The Carbon Cost of Complexity

Our technological society, with its systems, organisations, agencies, and processes is increasingly complex. This is evident to the extreme in ICT, where complexity has been growing by orders of magnitude. This complexity makes efficiency difficult to achieve and maintain. Of the different layers of ICT functionality — utility, hardware, systems, applications, and business processes — current technology, practises, and regulation address primarily the efficiency of the lower layers. However, a primary aspect of ICT inefficiency — over-demand of underlying resources due to software and process inefficiencies — is not fully understood, measured, optimised nor regulated. Addressing this last frontier of ICT inefficiency — optimising our processes for minimum demand for resources and our applications for maximum functionality, can prove to be the most significant source of savings yet.

As time progresses devices increase in number at a linear rate, However, complexity increases much faster so as the data centre grows we have many more simple devices but they don't necessarily work well together. You need a lot of management. The complexity that is associated with them grows exponentially. At the same time the metrics that you use in the management tools that you use in order to manage this complexity lags far behind. It is much more difficult to manage a multi-thousand data centre now than it did a single mainframe thirty years ago. And as we argue this phenomenon increases the environmental impact of ICT.

Ultimately, when I go onto a data centre and ask the question: how many servers do you have? Usually I get the answer: well about 1500 with about a 10% accuracy rate. So that corresponds to 150 servers for just one data server. That is one of the reasons there is such a high level of cost associated with this complexity. Ultimately what we are doing is we are wasting a vast amount of resources, to a level that people find hard to really comprehend.

If we drill down a bit into this issue we see that ICT is implemented in service layers of increasing complexity. Everyone knows all about power and cooling and utility level. These are fairly simple concepts with fairly simple devices. Moving up the chain of functional delivery and it becomes an issue of assets which is still a fairly simple concept. A bit more

complicated that at the level of utilities but still most people can grasp what is going on. Moving further up and you're talking about systems so it's harder infrastructure components that are combined to service applications. So we're talking here about virtualisation.

We find that in the market people can quite readily understand these concepts and how to use them in order to make a more efficient data centre. When you get to the application level that's where the complexity is because applications, by their nature, are extremely complex entities made up of thousands of inter-operating units. Managing and optimising them is an extremely difficult thing to do. You cannot optimise what you cannot measure so the metrics that we have within the data centre enable our fundamental enablers of optimisation. The optimisation focus and metrics map to the IT service layer. In this way we have metrics that measure the data centre management vitalisation. We have metrics, of course, that manage the power-optimised hardware. We have utilities being measured for e-cooling and so on.

Unfortunately, no one has any metrics associated with applications and they are simply no being addressed. This represents the gap in ICT optimisation. Current optimisation practises focus on optimising the supply of resources. We monitor, we measure, we optimise what the systems, the hardware the utilities are doing and how they are being supplied. However, nobody asking how delivery of functionality while demanding less resources. People are asking but they do not have the answer. The reason for this is that applications are far more complex than the infrastructure, and getting ones head around this complexity is extremely challenging. At the same time we do not have metrics to measure the application efficiency and we don't have any standard way of talking about them.

Hence, you could have two completely separate application vendors who will claim that they are more efficient than the other. They will both walk you through a process showing you why they are right and you will have no way of discerning between the two. The big bugbear is that once applications are deployed they are rarely optimized. Nobody looks at them. If it works they might throw some servers at it, but nobody looks at how it is working and why it is demanding so many resources.

So what we have to say is that we have to optimize demand by tuning the application. We have to go through the barrier and look at what is going on. We have to reduce the footprint of all the underlying infrastructure, doing more with less by demanding less resources. One of the great advantages of this approach is that it helps make savings with licensing costs.

One example of a project we did for a bank in North America. A week was spent tuning the software licenses. They have already made an extremely high ROI - return on investment - just by the license of the database. By retiring a few dozen licenses they already made back all the money they had to spend on the optimisation. They saved money, they got better latency, the got a much lower carbon footprint. Every one is a winner except, of course, for one vendor. But there's not too much pity. They are making a decent living as it is and we have a world to save.

When looking at these things one has to move forward a bit and think about them in a way that is completely different. This is because there are modern tools, and there are more modern skills around that help to do these things. It is much easier to do these things now than it was even as lately as two years ago. We have the tools to do these things now and they can be done on production systems. You are not testing in the lab which and obtaining results which a subsequently no applicable. You can actually test on the production system and fix problems there. You can get 90% savings and resources. There is nothing else: no

hardware, no utility, no communication. Nothing else can get you a comparable level of potential savings.

Of course this is not a representative sample but we have anecdotal evidence about how we can save even as much as 97% of the resources being used by applications. If you add to this the licensing cost you can make a lot of money - enough to finance all of your growth in IT delivery or function with optimisation. You don't need to buy one single bit of software and not one single additional server. It has immediately positive ROI. There is no waiting period. You don't have to wait a month. You walk out of the room and people are saving money.

My call to action is: manage complexity across all ICT service layers; examine end-to-end efficiency; think about the whole stack; don't just stick on the things that are easy to understand and easy to sell. You have to educate people about what this actually means. You have to support metrics. This is something that the industry needs to work on and we're looking at industry to come up with these metrics. Ask how you can supply resources efficiently but, more importantly, ask how you can deliver functionality while demanding less resources. That is the key question: make applications developers accountable efficiency. If it doesn't work efficiently complain to them. Tell them that the next guy can do it for half as much electricity and ask them why they can't sort themselves out. And the answer is they can sort themselves out. It's just that no one is out there pressuring them to do so.

This is how you reduce the carbon cost of ICT in a big way. To conclude, ultimately, people are looking at the problem where they find it easy to uncover it. They are not looking for the problem where it is. That is what we have to do in order to reduce the carbon cost of complexity.

SEBASTIAN BANICA, Senior Director Direct Sales, Omnilogic, Romania, presented a most interesting case study of a private company going green:

The Future is Green

It is possible for a private company to go green and to make money. According to a study made by Gardner in December 2008, 37% of the key IT organization initiatives in Europe are green IT, carbon emissions, and sustainability initiatives; 33% are data center, server, consolidation and other optimisation activities, 33% are outsourcing renegotiations and 29% concern business process reengineering. These are the main 4 initiatives for European ICT companies.

Willingness of end-user organizations to reduce the carbon footprint tops the list of organizations' key initiatives for the next months. This underscores the desire to reduce energy costs and fill in green company policies and concerns. The interest in green IT related to outsourcing is primarily focused on achieving energy and cost savings, and IT efficiency in general.

Although environmental performance is considered to be a significant criterion, it remains below the usual suspects of price and technical capability during the evaluation and selection process of IT outsourcers. However, in the future "green compliance" will be considered an important factor to renew deals or avoid contract termination. The focus on environmental sustainability is here to stay, and its impact on IT outsourcing is irreversible. Thus, services providers must continue to develop their long-term strategy around environment sustainability and support the enhancement of their business operations and IT outsourcing

offerings. Enterprises involved in IT outsourcing initiatives should clearly define their environmental priorities and targets as part of their sourcing strategy and not an afterthought. This likely includes targets to reduce power consumption and carbon dioxide emissions (in the data center, client computing, network and printing, among others).

Omnilogic has one of the most complex data centres in Rumania and is using green IT and client computing services. Omnilogic redesigned its data centres: They were using in the existing location 500m2 with high power, high voltage and high consumption. After the redesign, the footprint has been reduced from 500 m2 to 300 m2 and a reduction in terms of monthly costs for power, heating and cooling of 45% has been achieved. Between 40 and 60% of the total costs of a data centre are costs related to energy consumption and this is where green IT can have a positive impact.

It is important how to go green. Omilogic applies the following measures in their data centres: IT consolidation (servers and storage) and virtualization; in all data centres specialized energy monitoring equipment has been installed; best practice implementation together with an American company; improving the cooling air flow.

Proven "green" features will emerge as a serious planning and procurement criterion by 2009, and grow in proportion with rising energy and resource costs. Tighter regulations will emerge regarding energy use and load shedding, and rolling blackouts/ brownouts may be imposed. Aggressive management will attempt to reduce consumption of all resources. The raw materials requisite for high technology are increasingly expensive, though prices may temporarily stabilize as low-concentration sites become economical to exploit. Begin re-engineering of business processes to reduce waste.

A rise of interest in activity-based costing and business process re-engineering will raise the cost and reduce availability of staff candidates with these "hot" skills. Start training or hiring now. Shortages will also develop for "environmental" and "conservation" specialists, especially formally credentialed engineers. The impact of "resource shortages" will be a required concern for business continuity plans.

Major technology breakthroughs will not appear in the near future. While they may occur, many of the requisite resources (rare earths and so on) are in very short supply or are concentrated in China and Russia. Industry spin-up and the wide spread adoption of new energy-saving processes could take decades.

It does not make sense to outsource of processing to "lower energy cost" regions to solve an organization's problem. Energy costs are rising worldwide, and already exceed most governments' abilities to subsidize.

Regardless of the soundness of the underlying science or economics, "greenism", environmental sustainability and skyrocketing resource costs are firmly emplaced trends that must be addressed by strategic planners. Each institution's response must suit its unique niche and set of practices, while reflecting immediate stakeholder concerns. Most efforts will be invisible and require careful management of publicity and public image to count as successes. Only ongoing "hands-on attention" by senior management can ensure this is the case.

Economic Growth for Local Governments Through ICT

Note: Some of the speakers delivered their presentation in Romanian. A translation of these presentations will be included in an updated version of the Conference Proceedings

As **chairman** of this session**, BROR SALMELIN, Adviser to the Director ICT Addressing Societal Challenges, DG INFSO & Media, European Commission**, welcomed the participants and set the scene with an attention-grabbing way for the following presentations by explaining that the discussions will start with more generic presentations and then go to more topical elements that need to bound together.

The session's **moderator, DAN ISCRU, FNTM Lecturer/ e-Learning Project & Senior Partner, VMB Partners**, Romania, [www.vmbpartners.ro], welcomed the participants and conducted the session with great ease.

HERVÉ RANNOU, President Items International, France, [www.items-int.eu], delivered a great presentation on

Local Ecosystem… Beyond the Words

Local authorities decided to launch a strategic policy for the Information Society either to differentiate themselves from others or to compensate their situation or size compared to other cities. Differentiation means for instance that cities try to be the first or the most advanced compared to others by empowering local strength and skills. Compensation means the compensation of structural unbalances.

Generally, cities have different possibilities for their strategy: buildings and transport, or ad hoc actions in the ICT sector, such as strategic assistance to local entrepreneurs, the provision of public funding and grants, etc.

However, there is a lack of coherence in public policies due to the fact that cities, in general, have different organisations in charge of different aspects related to ICT. They generally have on one side a real ICT policy focussing on ICT infrastructure and usage, and on the other side an economic development policy responsible for actions in R&D, business assistance or the development of ecosystems.

Infrastructure are playing a key role in all countries – last but not least to close the digital divide, but in particular to develop employment, ICT usages in SMEs and local services.

The difficulty local authorities often face is that they do not really succeed in creating an ecosystem. In general, they succeed in launching infrastructure projects or projects regarding usage via citizen services – but it is difficult for them to develop the local ecosystem representing the intermediate layer.

This layer is most critical because it is necessary to develop an infrastructure, which means that cities can develop an offer, it also allows to have actions regarding the usage, which means to develop the demand. The action on local demand combined with an efficient infrastructure to activate the offer creates the conditions of the mergence the ecosystem. It is important to create a web of activities within a city. However, it is not the job of cities to develop software or applications to boost usage – this is the job of local private partners, such as SMEs, universities etc. Often cities spend a lot of money to develop projects to increase usage and once the project ends, there is no more local activity on this project.

It represents a real challenge but at the same time bears many opportunities, especially due to convergence. Companies developing services no longer only focus on tele-communications or software because everything is merged in the same business. Companies have the opportunity to develop convergent services, including integrated telecommunications services, Internet services or video services.

DORIN FLOREA, Mayor of the City of Târgu Mureş and Vice President of Association Municipalities of Romania

European Digital City Based on the SVN Concept

[Presentation in Romanian,
You can find an English Version of the PPT on Items Website www.items-int.eu]

ADRIAN APOLZAN, President of the Association for Electronic Payments in Romania – APERO, Head of Cards ING Bank, Romania

[Presentation in Romanian]

CATALIN CRETU, General Manager, Visa Europe, Romania

How Payment Systems Help Limit the Shadow Economy in Romania

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

]

BOGDAN GĂUREAN, Deputy General Director, National Trade Register Office, Romania

Online Services Offered by the National Trade Register Office (NTRO) for the Business Community Through a Dedicated Portal

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

IONUT TARANU, Development Director, Eurado Project, Romania Eurado

Public-Private Online Social Network

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

ANA MARIA MIHAESCU, Chief of Mission, International Finance Corporation, Member of the World Bank Group

Local Administration and Finance

[Presentation in Romanian
You can find an English Version of the PPT on Items Website www.items-int.eu]

VALENTIN MIRON, President, VMB Partners S.A., Romania, [www.vmbpartners.ro] delivered a great presentation on

Multi - Year Capital Investment Planning
"e-My CIP": New Solutions for Cities

Structuring municipal bonds is VMBs care business. VMB is today financial advisors for 82% of the domestic market.

The software platform VMB is currently developing is the "Electronic Multi-Year Capital Investment Planning". It helps local governments to screen their new and ongoing development projects and comes up with an indicative prioritisation and ranking of the identified ones. The software is doing and renewing the evaluation, analysis, and the multi-annual forecast of the local government's budget.

It also represents a finance mobilization toolkit that helps local governments to develop revenue enhancement options, alternative financing scenarios that will match their development requirements. The platform is a tool that helps local governments to match the estimated costs of the priority projects with available funds through an iterative process.

VMB tired to focus on both the local level in terms of developing appropriate and flexible planning methodologies and at the same time to address the issue of the investment plan developed within available resource constraints and aligned to fiscal realities.

Multi-year capital investment planning has emerged over the past two decades in the U.S. as the key tool to improve the effectiveness municipal public investments. Secure additional financing especially via the use of borrowings permits greater local control over investment decisions. In Romania this has been practically ignored due to the country's particular political past. However, the usefulness of capital investment planning has been demonstrated all over the world and it is time for both national and local governments in Romania to adopt such effective tools.

The **chairman, BROR SALMELIN, Adviser to the Director ICT Addressing Societal Challenges, DG INFSO & Media, European Commission**, closed the session by a message of the EC. The EC sees that invention is not enough, research is not enough and deployment is not enough. It is important to have the "big picture" with all the components coming together.

There are very interesting single islands but is there really a system which is based on service convergence or on what the citizens as private persons expect from public services? And then a bigger question: What is the new growth industry we can build on? Who is advocating or taking the responsibility for that? One of the thoughts of the EC is that the public sector can be a very strong driver for this not yet existing industry. It is very much based on the paradigm shift towards a very open society based on new values coming from the technology – also enabling the users to be innovators. The world can not afford to loose millions of brains to develop user-led services. There is a need for public-private-people-partnerships.

The public sector can be a driver of this. There are plenty of instruments such as public procurement. There is also a need for common architectures and common functionalities within these isolated islands. The new objectives could be to create a better quality of life through better user-centric knowledge intense services, to create a new service industry based on open innovation, and to create business ecosystems combining large scale open platforms with modular building blocks, their contextual integration and user-near service provision.

The session's **moderator, DAN ISCRU, FNTM Lecturer/ e-Learning Project & Senior Partner, VMB Partners**, Romania, [www.vmbpartners.ro], appreciated the good mix of public sector representatives mayors and various private actors.

Euro-Mediterranean Innovation Network

The **chairperson and moderator** of the session, **PIERRE LAFFITTE, President Sophia-Antipolis Foundation; Honorary Senator named by the French President Nicolas Sarkozy Head of Mission in the Framework of the UPM (Union for the Mediterranean)**, France, opened the session by briefly presenting the background of the Union for the Mediterranean initiative:

Why will Mediterranean players: European people and people from South of the Mediterranean ring, be working together in co-development and innovation? Innovation is the key priority, because everything is in a process of change: the climate, the economy, people's habits. Globalisation is giving way to new issues and innovation is the only way to face these issues. Social, economic and industrial innovation must be considered, as must ecological and political innovation. One of the most recent political innovations is the development of Europe in the Eastern countries, and here is Romania we know that this is very important.

The second major political innovation is Nicolas Sarkozy's initiative, which is now shared by everyone in the EU and the European community in particular, to pool intellectual resources. We're now developing a common view, the work of 500 million intellects from 500 million people, which will lead to a very positive future for Mediterranean people. This could develop, in the near future; EMIR – Europe, Middle East and Africa. We have already started thinking in this direction, especially in terms of financing. This common co-development will be very useful and it is very important for Europe and the world to build a stronger relationship between the countries of the Mediterranean region. There is talk of a war of civilisations but we want to be peaceful. The late Sultan of Morocco, father of the current king, said that the Mediterranean should be a league of peace. The aim is to work on this through innovation. This meeting is part of the Euromed Innovation Network and I have been given the task of developing this by Sarkozy, as I have been working on innovation systems for over 50 years, including work on Sophia Antipolis, Europe's oldest science park. This park now has the capacity to prove that ecology and economy work together and that green tech is vital to solving industrial and economic problems. A 6 billion a year net income has already been developed in the region, which is huge. So the country and local government have a substantial income which means that we can develop technological innovation without any demands on tax payers. The profits due to innovation are much greater than the cost of innovation.

TIMO HAAPALEHTO, Innovation Policy Development Unit, European Commission, briefly outlined interesting reflections on the European Union Innovation Strategy:

A brief description of European Union Innovation Strategy - where we are now and where we are heading. The current strategy, Broad Based Innovation Strategy for European knowledge and practice, was adopted in 2006. The novelty of this strategy is that it covered non-technological innovations for the first time: services, demand-based innovations. This strategy had 9 priorities: IPR, standardisation, public procurement, finding joint technology initiatives, partnerships, public-private partnerships, lead markets, European Institute of Innovation and Technology plus services and risk capital.

The commission performed an assessment after two years of the strategy's implementation. This began last spring and in September the results of the two years were published. Generally the implementation got off to a good start, with some results already. One of the key reasons for the strategy was the fact that Europe is lagging behind the main competitors: Japan and the US. Recent statistics show that we have succeeded in reducing this gap. Advances have also been made in all 9 areas so the implementation is on the right track. However, looking at the situation in more detail, for example at the difference between member states' innovation capabilities, it shows that there is too large a gap between the innovation leaders and other countries. This is one of the key issues to be tackled in the near future. Not hindering the advances of the leaders but helping the other countries to catch up with their advances. So the innovation plan should help all member states advance in their efforts.

Today different consultations are taking place – on the one hand public consultation (you are encouraged to send in your ideas and views of what should be included in the next innovation strategy), on the other hand is the official consultation of the member states. The timeline is such that this consultation will finish in mid-November and the final proposal for the commission's innovation plan will be go hand in hand with the post-2010 Lisbon agenda, of which innovation is a key element. The innovation plan should have a clear relationship and respect the member state policies. It should focus on European values and positive impacts as well as having a position in the global environmental and social context.

Until now the discussion has indicated 4 key topics, around which future innovation policy will be centred. The first is to improve the coherence and coordination between different initiatives launched by the commission but also by the member states and actors from the private sector to tackle the challenges we face in the environmental sector. The second topic is to continue with the innovation policy - we have had some good results but we have to continue to tackle this field more thoroughly. The third section is to improve finance and support for innovation, and to simulate private funding for innovation, for example creating or improving the venture capital market for start-ups. The last topic is to improve governance. The aim is to have a radical simplification of these programmes.

GABRIEL MERGUI, Director, Genopole International, France, presented with great know-how a particularly innovating approach

Sharing tools with Mediterranean Players -- The example of the EU Project: Bio-CT

Bio-Common Tools aims to share tools between bio-regions. As previously mentioned, there are some more advanced bio-regions, or bio-clusters, and some newer ones. The question is: can every bio-region build all the tools necessary for the development of their innovative projects? Whether they are start-up companies or academic projects dealing with innovation. The answer, obviously, is no – there is not enough money to build everything everywhere. So the next question is, can we share tools? Yes we can, but how is this going to be achieved?
To take the example of Genopole, which started a project ten years ago, here is the score:

In the South of Paris 10 companies a year have been launched over 11 years. Some failed and some relocated but 70 of them are present. 30 of them have revenues. 70 molecules are in clinical trials and the first therapies are expected on the shelf. Companies are still trying to get in to Genpole's incubation system and 670 patents have been filed by Genopole's companies. It is a success story. To give one figure, the cumulative figures that our companies have raised in the venture capital community in December 2008: € 208m after preceding funding of € 13m, so the leverage is not too bad.

It is not a miracle as we are from the leading economic region of Europe and the bio-cluster is very strong. Even though it was hard to get established in the southern suburbs of Paris, Genopole now has good researchers, the largest hospital system in Europe (APHP). What has been done is not a miracle but a system of mentoring has been created, there is a great deal of expertise in assessment, a number of tools have been built.

For example, when a start-up company goes to clinical trials, if their work is quick and shabby it will not get past the food and drug commission of the EU, so they will have to do it again properly, potentially loosing two years and investors. The decision was taken that all Genopole's start-up companies would have a clinical trial, that it would be very quick but very clean in order to have Good Manufacturing Process (GMP) from the beginning. Firstly that the molecules should be GMP. The education system is very important because researchers know nothing about filing a dossier at the FDA so Genopole has to teach them. Of course these tools can be shared, which is why we were nominated to coordinate this consortium.
Bio-Technology Common Tools (Bio-C.T.): Sharing tools to build Excellence

Not every region can have these tools but things seem to be moving on the right track. The action plan, after 30 months of work, is to set up a system, not only of ideas but of implementation. We are situated in the so-called “Death Valley” between science and industry, on the way to innovation. Innovation can be industrial, e.g. creating a start-up company. But there needs to be two elements: the entrepreneur and the researcher. Sometimes there is a researcher without an entrepreneur and sometimes there is only the entrepreneur who cannot find funding so projects come to nothing. Academics have started to take this pathway, which allows the creation of a start-up company at a certain moment.
To succeed we need tools and we must share them. We are in consortium with Barcelona, Turin and Berlin and we are in the council of Europe Bio-Region (EBR) and we have Inno based in Sophia Antipolis

The three main packages are:
Project Maturations – how to share tools for incubating companies, assessment, mentoring. Human Resources and their mobility – how to share the reverse brain drain actions Access to first class facilities – the idea that a start-up company in a young bio-region can have their bio-production made a Genopole or other tool of the same kind that exist in Europe.

Examples will be taken in the specific area of Translational Medicine. (Genomics, Proteomics, Epigenomics, Metabolomics. Special focus on clinical situations in CNS, CVS, Oncology, inflammation).

Compulsory consistency of JAP with the R&D agendas of Regional Governments in the Partners' Regions. The commission demanded that the regional governments be concerned and follow the projects carefully.

The system will be open to people from outside the consortium, it will be open to Mediterranean countries. The concept of the second circle has been sold to the commission, so for those interested in participating in the Joint Action Plan, there will be Madrid, Heidelberg, Krakow and Rabat and Pretoria are calling.

ALAIN RENCK, Director of the International, OSEO, France, contributed to the discussions with a presentation of how public company supports innovation:

OSEO is the public enterprise for entrepreneurs in France. Usually one hears public institution and private enterprise but here it is public enterprise as OSEO aims to help SMEs in France. The French government has 100% of the equity and there are essentially two missions: to support innovation in French companies and to facilitate access of SMEs since the financial crisis to bank loans and equity capital investors, particularly most high risk phases: to boost and secure the cash positions and promote growth of SMEs.

To follow these missions we have three core activities: innovations, guarantees and funding. This is done with the help of a strong regional network. OSEO already works with other partners in the real network organisation as well as with regional authorities, research organisations, incubators, banks, consular networks and so on.

Some key figures for 2008:
70 000 enterprises were supported in France by OSEO and 6000 innovative projects were started with our tools (see below). There are 1800 people in OSEO, 1000 of whom are in our regional network.

For innovation we support and finance innovation projects with concrete possibilities of reaching the market stage. New products are targeted but also new processes and new services. In 2008, € 800m supported 4000 companies with 6 major programmes.

Firstly support for innovation – supporting and financing the project sponsor of the enterprise at each stage of the project. This concerns companies with up to 2000 employees and up to €3m per project. The major tools are subsidies and reimbursable advances at 0% interest.
The second programme is strategic industrial innovation, to anchor the emergence of European champions in technological breakthroughs with industrial purposes and obligatory collaborative projects. It could be an SME or an intermediate company (2500 – 5000

employees), with a preference for public-private partnerships. The aid is €3m – 10m euros split up between grants which are to be paid back (with interest this time).

The third programme which we are beginning this year is FUI (Fonds Unique Interministériel) to finance French clusters, pôles de competivité, with subsidiaries.

The fourth programme is all the European innovation programmes such as FP, Eurostar and Aeronaute amongst others.

The fifth is original – start-up loan programmes for innovative companies. Young start-ups' innovative projects run into many difficulties, there is not enough venture capital so start-up loans have been created. Long terms loans create the conditions that encourage the involvement of start-up equity funds so that the project can continue to progress. Any expenditure included in innovative programmes is eligible. Financing through loans of 50 000 – 150 000 € with no guarantees of the start up and no guarantee of the collateral of managers and upper limits of the equity investors. It's an eight-year long programme – "patient credit" as we say in France. The first three years are a grace period as it is interesting for a young start up to wait for venture capital.

The sixth programme is the FCPI innovative company label. The aim is to obtain this label, which is valid for three years, and which gives the company access to special equity funds in France, specialized for innovative companies who take more risks than others. The risk with innovation is high so we have to supply and help this field.

Another programme is a cash advance programme for young enterprises – SMEs that have been in existence for under five years. The purpose is to turn into cash the receivables related to orders and tenders issued by large customers, notably those involved in the SME agreement. The credit is usually confirmed for one year so that they can be secure and have money to develop their innovation programmes and get their market involved from the outset.

ZOLTAN BENDO, Senior Program Manager, Pole Program Office, Hungary, provided an excellent insight in the

Status of the Pole Programme and Cluster Development in Hungary

Hungary, as a small and open economy, has been strongly hit by the current economic crisis, GDP has fallen by almost 7% so good policies are vital to get out of the current situation. One of the good policies is cluster development, which we are currently implementing. Heavy reliance is on the structure and cohesion of funds of the EU in implementing the programme. We have studied examples of foreign countries, including French competitive poles but in the end our own programme has been set up, tailored to the Hungarian circumstances.

The metaphor of a castle is used, showing two bastions. One is the subsidies and support for pole cities, in the frame of horizontal development: EU support for R&D, for institutions, universities and so on. The other bastion shows the cluster development, giving non-refundable grants to the cooperation of companies. There is €1.5 billion for clusterization and cluster development, and horizontal economic development, in the current budgetary period: 2007 – 2013.

A four-stage model has been set up for cluster development. In the Socialist era it was non-existent and in the years of transition and the early years of the 90s, the wild capitalist years,

cooperation was barely seen. It was very difficult to make companies cooperate with each other. This national cluster development policy that we're trying to implement now is to persuade companies to find joint projects, possibilities and opportunities. This is critical and the only way to get out of the current economic situation. In the diagram there are tailor-made subsidies available for start-up initiatives, then a level is set out for developing clusters, at the third level we have accredited clusters. And the top level, pole innovation clusters, which is currently being expanded.

Here are the winners of the start-up cluster tender. There are 79 cooperation initiatives have been supported to the value of €8 million. Basically the set up and strengthening of the cluster management. The second map shows developing clusters, which have gained subsidies for joint projects. Altogether 21 of these clusters have had a grant of 5.3 million. If we add the start-up clusters to the developing clusters, 100 clusters have had subsidies. The diagram shows the industry breakdown: energy, machinery, ICT and environmental industry are the most important.

This map shows accredited clusters. Special and dedicated resources are available for these accredited clusters but these sources are only available to clusters and members of these clusters who have projects with a strong innovation profile. Altogether there are now 17 accredited clusters: 7 in healthcare (bio technology, medical equipment, pharmaceuticals), 4 in ICT (software), 3 in environmental industry, 2 in packaging and 1 in construction. Certainly these clusters are not to be compared, in size or in significance, to those in the Paris region but we hope to have 3 – 5 companies that have international visibility, that are highly competitive and able to contribute substantially to the growth of the Hungarian economy.

Here are the names of these clusters, the five dealing with ICT are highlighted. After there is some data about each of these ICT clusters, most have 15 members, some up to 30 or 40. All have university research centres, most are SME focused, except Mobility Multimedia Cluster which has large telecom companies.

Accredited ICT Clusters in Hungary: The pole programme is coordinated and implemented in the office, in order to help clusters to cross borders. This is what we want to develop for the Hungarian economy.

On behalf of **CANDACE JOHNSON, President, Johnson Paradigm Ventures**, France, who could not attend, Senator Pierre Lafitte presented

Smarter Governments: Empowering Citizens – Putting the Power into Private Entrepreneurs and Private Investors for Early Stage Innovation and Investment

Sophia Business Angels association in France is private, and specialized in early stage financing. It depends on the due diligence, which is given. The due diligence in Sophia Business Angels works quite well and has already financed 23 million private individuals. This is a result of the new law in France, the loi TEPA. TEPA allows rich people, who would have had to pay a high rate of tax, to give funds to Sophia Business Angels to finance technology start-ups and only 25% of the tax they would have paid. Most now choose to give private money, which is estimated in France to have come to around €800 million last year, more than the whole of the venture capital industry in France.

A European association of Business Angles is now in progress, in Italy and the UK already. There is even some interest from the US, because there are opportunities in Europe that may drain money to small companies of Europe. This could also be developed in other countries of the world because there are always rich people, for example in Egypt, Morocco and of course Saudi Arabia. This could become a way of developing early stage financing and promoting the progress of European and Mediterranean small start-ups. Now there are more than 60 people who work in this small group in Sophia Antipolis and we hope to reach 100 very soon. But there must be groups all over Europe in order to coordinate new developments in clusters. This is a way of encouraging cooperation between people as well as between organisations and states, which is a very important innovation.

JEAN-YVES LEOST, Executive Manager International Affairs, RTE, France, gave a very interesting and innovative demonstration of

The Development of the Euro-Mediterranean Electricity Market

RTE is a French TSO and ENTSO-E is an acronym of European Network Transmission System Operators for Electricity. Medring is the Mediterranean ring. RTE's contribution to the Euro-Mediterranean electricity market will be considered.

RTE is a subsidiary of EDF and a TSO – Transmission System Operator. RTE operates a network of more than 100 000 km of high voltage and extra high voltage lines. RTE is responsible for the national grid but also the interconnection with neighbouring countries. In the diagram this is represented in red. Blue represents DC lines between European countries. Red is AC, alternative current.

RTE is in charge of providing non-discriminatory access to all producers and consumers. From a legal point of view RTE is a subsidiary and independent from EDF in terms accounting, finance and managerial aspects. RTE's objectives, as for TSOs all over the world, are: to balance electricity generation with consumption at all times; to guarantee the secure operation of the power system (carrying electricity 24 hours a day, 7 days a week); to maintain and develop the network to allow generators, distribution networks and consumers to be connected, as well as interconnection with neighbouring countries; to guarantee non-discriminatory access to the transmission network, whilst ensuring that commercially sensitive information remains confidential; and to integrate transmission installations into the environment and to ensure the security of people and property … all at the most economical cost possible.

In European electricity today, there are 27 interconnected countries (20 EU member states) with 4 synchronous zones: Scandinavia, UK, which is only connected by the sea link from France, Ireland, which is only connected by the sea link from the UK, and Continental Europe – characterized by installed capacity of more than 650 GW, 3000 TWh/year and physical exchanges of 300 Twh/year.

ENTSO-E is a merger of the former UCT so it's an association of transmission systems operators. There is an appropriate working structure with three committees: system development, system extension projects and operation, and security of the grid.

On the diagram the synchronous zones are represented by different colours. Maghreb - Morocco, Algeria and Tunisia – is already connected to Europe. Ten years ago a line was built to connect Spain to Morocco. Today there are two links representing more than 1400

MW maximum exchange between Europe and North Africa (Maghreb). The second zone is Libya, Egypt, Jordan, Syria and Lebanon, which are all connected. The third zone is Turkey which has an isolated network, not connected to continental Europe or Syria at the moment.
Medring is the Mediterranean Electricity Ring is the sequence of the various national networks bordering the Mediterranean shore which are interconnected. Then they form a kind of oval (about 4000 km long, 2000 km high) around the Mediterranean Sea. As Pierre Lafitte has said, Medring is an essential structural basis for a European-Mediterranean electricity market. Medring constitutes both an element of economic modernization and also a path to peace.

The situation today: Two trials are expected – to connect Libya and Tunisia before the end of the year. This hopes to be successful otherwise alternative solutions will have to be found. The second very important trial, is the connection of Turkey to continental Europe through lines with Bulgaria and Greece. At the moment there is a connection for local consumption in Ankara but it's not synchronous with Syria, Iraq, Iran and Georgia. The aim is to exchange 3000 MW between Europe and Turkey.

In terms of the Turkey interconnection, RTE and TEIAS (a Turkish TSO) have signed a 2 year-twinning contract as early as 2006 aimed at improving operation and maintenance of the Turkish transmission grid. It was a success, this contract allowed progression in terms of interconnection to the European Continental System. After a trial year in 2010, the final interconnection should be realized in 2011. A cooperation agreement between RTE and TEIAS was just signed on 2nd October in Ankara regarding deregulation, system reliability and the quality of supply.

In conclusion, ENTSO-E has put in place an organization to study the new interconnection challenges. The previous process has been a step by step integration procedure by adoption of European standards. ENTSO-E has to maintain the whole system at the same high level of reliability and stability. The on-going MEDRING process is not yet finished, as previously underlined, the sizes of the systems to be interconnected are completely different. As in the foundation of Europe, this will not be the first time that energy plays this role. In 1954 the construction of Europe began as a coal and steel community. Energy from that time is now part of history, European partners have a key role to play.

Senator Pierre Lafitte added that through this energy system, RTE and everyone in charge of the interconnection and distribution of energy, the Euromed dream is starting to become a reality. This reality has been briefly presented by Jean Yves Leost, although he didn’t go into detail on the technological problems, which are very great. These problems can be solved and this needs a political will, which will certainly be developed as people understand that the distribution of energy and interconnection are becoming more and more important. As new sources of energy are being used, interconnection is becoming more important and more difficult. When there is no wind there is no wind energy, when there is no sun there’s no solar energy, but we need energy all the time, it’s very important.

CHRYSTEL SIMONE, Engineer Eco-Conception, Centre d'Animation Régional en Matériaux Avancés -Carma, France, provided a highly interesting overview on

An Eco-Design Center in Sophia-Antipolis

CARMA is a regional cluster in advanced materials and eco-design in Sophia-Antipolis in France. Sophia-Antipolis is now internationally recognized for science and environmental technology. The cluster works mainly with SMEs, to try to help them to develop innovation and integrate advanced material into the new technologies market, which leads us naturally to eco-design.

The simple definition of eco-design (eco-conception in French) is the reduction of products' and services' life-cycle environmental impacts. To do this, the environmental criteria has to be taken up early in the design process, along with the more classic economic and technical criteria. Eco-design is very interesting for companies to reduce their impacts but also to innovate and to anticipate legislation.

Eco-Design Center has been set up in Sophia-Antipolis as well. Eco-Design Center has the following missions:

To promote eco-design to regional companies and develop new competitive innovative products. For this we supply information on Eco-Design, carry out training sessions and do consultancy work for the development of new products. There is a showroom being built in Sophia-Antpolis for information on Eco-Design. It will be opening at the end of November. There is a showroom of products and a series of conferences on Eco-Design, workshops and a mediatheque. For the development of products, companies are supported with market analysis, design and technical studies which help in product building.

Eco-Design Center works with five industrial sectors: energy, aeronautics, buildings, electronics and packaging in the food industry. In the slide are the names of the cluster and the company related to each sector. For energy there is the cluster Capenergies and the SME SAED (Sophia-Antipolis Energy Development). SAED is a start-up working with energy storage and renewable energy technology. It's developing solar and thermo-dynamic energy in power plants and it is integrating eco-design. It is important to encourage and promote new technologies but these innovations must also be good for the environment. This technology brought by Sophia Antipolis Energy Development is interesting because it allows integration into existing electric networks, it allows energy storage, which solves the problem of having energy all the time, even when there is no sun.

Eco-Design is also a matter of changing the way we make design so collaborations have been forged inside and ouside of Eco-design. Another objective of Eco-design is to develop a European and Mediterranean network. The first example is the collaboration with EEDEN, which works for the promotion and development of eco-design in plastics companies. This is in France and Italy and there are now partnerships with Morocco, Algeria and Tunisia too, to try and develop and implement Eco-Design in plastics companies. EDC wants to develop networks in the environmental field with regional and Euro-Mediterranean networks.

Another important example is a project called MATEN (Material Energies). The aim of this project is the identification of all the regional (South East France) skills in renewable energies technologies & materials and development of Euro-Mediterranean projects for RE implementation. The partner for this is the cluster mentioned previously: Capenergies. Capenergies is a representative cluster in South East France, it represents technologies which have less carbon impact. The new strategy of Capenergies is to develop in the Euro-Mediterranean region. They are already working with SAED and also have partners in Italy, Switzerland and Tunisia to develop new technologies in the Euro-Mediterranean field of renewable energies.

Currently EDC is trying to expand its networks to promote the knowledge and practice of Eco-Design. This is a good way for making companies competitive, encouraging innovation and reducing costs in the long term. It is a good way to make companies eco-compatible, that is technologies that have less of an impact on the environment and that are consistent with all the legislation we have in Europe on the environment and energy. EDC is open to discussion with other countries, to help them to implement eco-design and to collaborate on such projects as MATEN.

THIERRY BIÈVRE, Managing Director Elithis Ingenierie, France, presented with great clarity and skills

The ELITHIS Tower

Elithis employs 75 people and is specialized in saving energy in buildings. The headquarters are in Dijon, France, in the Elithis tower. Elithis' business development is based on this experience and their goal is to become one of the leaders in energy performance in buildings in Europe by 2015.

The aim is to provide aesthetics, urban integration, comfort and energy efficiency in an environmentally friendly building at the same cost as a traditional building. A building must be as efficient as possible. Firstly the partitions and divisions between all the jobs, habits and preconceived notions had to be broken down, this was certainly the biggest challenge to be met.

To meet the need of building a positive energy structure at a standard price, a new innovative management system was created, called lateral management. The lateral manager is a coach, he will convey positive efficiency targets at a standard price to each of the actors: architects, designers, engineers, industrialists and workers so that they can express their talents and offer their skills and experience to serve these two objectives. The brain power of each of the actors is used at every stage to compensate for any funds recried over the cost of a traditional building.

The specification and potential solution was discussed with everyone from sponsors to users. The new slogan was born: more grey matter for a smaller carbon footprint. Before the stage of conception, six months of research and development were carried out to write the programme. All the researchers, who were selected to express what is fundamental: the change of positive energy, were young, with less than a year's professional experience. This type of organisation was chosen because they are able to express their creativity and sense of innovation without limits and preconceived notions. The lateral manager took all the specifications and coordinated them with the senior engineers in a programme that was given to all the actors. For example, for the architects, the building was not drawn but the constraints were noted. To win the fight of positive energy results and to guarantee it, the

structure must be sober rather than using too much technology. It is more virtuous and less expensive for the users because they are less dependent on energy bills, electricity, gas and so on.

The positive energy Elithis tower is first and foremost a sober structure. The architect was helped with the following elements: for all the buildings on the site, wind and solar exposition overrules the energy saving specifications. Natural lighting is optimized and this way more useful space is created and numerous innovations are introduced. The shape of the building is a result of in-depth research and the best is done to integrate the following elements: a compact building with one level more than adjacent buildings of the same height, an aerodynamic building, a wind proof building, a 75% glass facade to optimize natural lighting, a solar shield to save on lighting and to reduce the sun's rays and heat, and an ecological facade, using wood.

It has become apparent that this new management system to integrate engineering earlier on in the process frees the architectural model. The other steps are technical and technological. For heating the whole building only 10 m2 of wood was needed. For cooling a new free cooling system has been created, 'Triple Flow Natural Ventilation', which works with a thermo-dynamic process when the level outside is too high. Bay windows were selected to bring in natural light, to do this a special lighting system was designed by the Elithis team to guarantee a comfortable level of light without excess artificial illumination. To take advantage of solar energy – warmth and natural light – without the associated inconveniences (excess heat and brightness) a solar shield was designed by Elithis engineers. The roof also house 560 m2 of photovoltaic panels, which generate about 80 MW/hour of electricity – 90% of all consumption.

Despite these innovations, the Elithis tower is not yet a 100% energy neutral building. A residual of 10% needs to be saved to acheive this. However to match the architectural and engineering commitment to positive energy, Elithis must call for behavioural impact. Everyone in the Elithis tower from owners, tenants, leaders and academics, administrators, employees and visitors, is empowered to participate in the environmental efficiency of the project. An increased level of consciousness is encouraged, which means that people using the building are aware of their responsibility in energy consumption. Individuals will be inspired to make positive choices to minimize energy use in terms of paper, water, transportation and so on, thus reducing their carbon footprint.

With more than 1600 sensors installed to examine and analyse energy and emissions, the Elisthis tower is a real scientific laboratory of research and development to make users the real winners of the fight against global warming.

EUNIKA MERCIER-LAURENT, President, Global Innovation Strategies, France, gave a very distinguished presentation on

Virtual Knowledge Space for UFM –
An Amplifier of a Sustainable Innovation@the Speed of Thought

European and Mediterranean people have been building knowledge for years. Places of knowledge, such as Alexandria have been built, as have many other libraries. They have also built places to learn, discuss and innovate. For centuries they have travelled to learn and exchange with other cultures. This knowledge can be used to innovate and to build a sustainable future for all. They also built various communication networks, able to connect distant people, by radio, telephone and Internet.

This is a presentation about energy but also brain energy. There is an initiative, Cordis.lu, a European information system, containing a lot of information still collected with a traditional database approach. It has to be more efficient – a lot of tools have already been created with the European programme but the link and the visibility are missing and it is not easy to find who worked on what and what the results were. When a project is finished the information is not updated.

Another initiative in culture and tourism is Mucem – the Museum of Civilisations. There are scientific companies in this area but there are not many connections between these initiatives. The link between scientific centers and companies and also between domains, should be created or reinforced. Today there are very powerful computers, Smart Phones, artificial intelligence, web tools and many services but time is still lost sorting, finding and reinventing existing tools because the knowledge is not common.

The other context is the global world, the crisis has to be faced, the planet must be cared for as has been pointed out by other speakers. In this context we need to think differently to how we did in the industrial era. Innovation is the main issue, but not just technological innovation. Cognitive innovation, behavioural innovation and organisational innovation are also important.

The speed and efficiency of the innovation process from idea to success depends on the capability to collect and improve our intellectual heritage and to invent a new one by combining past and new knowledge: natural and artificial intelligence, taking the best from different cultures. Global Innovation Strategies' suggestion is to connect people through a knowledge flow, allowing the generation of projects from opportunities, values and local capabilities, to bring a contribution to economic and social development of regions.

Global Innovation Strategies would like to create a virtual knowledge space for Euromed communities in order to amplify the capacity to innovate together through an effective knowledge collecting and sharing platform. To be effective, this platform should be conceived using a global system approach and be based on another ICT: innovative, intelligent and creative technology. Knowledge flow has to connect the best from past knowledge, will include a collective bank of knowledge with existing initiatives, projects, results, experiences and an effective search system. This knowledge bank could be the source of opportunities. Empowered by collective knowledge and intelligence, knowledge collectors become the opportunity hunters. This knowledge will also be used for innovative education to learn different, imaginative ways of thinking, to learn to be enterprising. From these opportunities, future centers may be created in an inspiring and healthy environment. Global Innovation Strategies are looking for partners to build this sustainable future together.

MALEDH MARRAKCHI, Advisor to the CEO, Tunisie Telecom, Tunisia, presented with great incentive pioneering developments in Tunisia:

Euro-Med Innovation Network: "Tunisian Case"

Here are some facts and figures about Tunisia: the population is 10.3 million with GDP growth of 5.2%. The literacy rate is 80%, the highest for an African country. ICT in Tunisia is an important sector on which the government puts much emphasis. ICT is the main sector of growth in Tunisia with 20% growth per year. Tunisia is looking to set up a digital economy based on ICT infrastructure where each citizen will have internet access and ICT technology. Programmes in ICT capacity building are also being promoted as are e-government and e-business programmes.

Innovation is one of the main drivers for digital economy, giving the Tunisian economy opportunities for competitiveness, which will bring more employment opportunities. The innovation landscape in Tunisia is mainly driven by ICT clusters, such as ElGazala Technopark, with about 80 ICT companies and a revenue of around €40 million a year, 60% of which is in export activities. There are also high school and research centers in the technopark, gathering 4000 people.

There are other technoparks in the government plan for the food industry, bio-technology and energy. The government has also set up a programme for a cyber park network with physical spaces for ICT innovation activities, distributed through the main towns of the country. There is also a partnership with European clusters in the field of ICT, electronics and mechanics. On the other hand a network of start-up incubators has been set up, providing spaces for 6 to 24 months, for innovative projects, and providing managerial, technical and strategic coaching. This is certified by the European Business and Innovation Centre Network.

Tunisia has a comprehensive framework for innovation. There is a very high political will. ICT is a strategic choice for the next decade within Tunisian Knowledge Economy strategy. Tunisia is ranked 1st, by the World Economic Forum, in innovation within African and Arab countries, it is 27th worldwide. Tunisia is also very involved in promoting education. 25% of the population is in schools and 25% of State budget is dedicated to education, which is about 7% of GDP. The government is also pushing R&D, with 1,2% of GDP. The target is 1,25% by end of 2009. 30% of students are in Science & technology branches, 12,6% of students are in ICT branches. There are 50 thousand students/year in these branches in 2009.

There are special incentives and funding mechanisms to promote innovation and assist new innovative projects. There is a venture capital fund for ICT innovating projects, R&D investment allowance, incentives for HR certification programs and a spin off framework with incentives and allowance for employees, especially in the public sector. There is also a very comprehensive legal framework controlling business interchange, for IT security, Personal data protection, and digital economy, which establishes a framework for public-private partnerships in innovative projects. Since June 2008 there has been a new intellectual property rights act.

Tunisia Telecom is an innovation actor. As an incumbent operator, providing broadband to all campus, business areas and technoparks. Tunisia Telecom is also a provider of special mechanisms to support innovation projects with a risk fund for innovation and a high added value and development, set up in May 2009, with around €10 million. Tunisia Telecom is

also a member of the spin off program for Innovative Services and is funding R&D projects in cooperation with Universities and R&D Labs.

Tunisia Telecom is an actor in the innovation landscape in Tunisia as a shareholder and partner of main national innovation actors. It is a shareholder of technoparks, such as ElGazala Technopark, Sfax Technopark. It is also a member of Incubator's Steering Committees, a member of High school's Scientific Councils, a partner with many innovative Tunisian SME's and a partner of the Microsoft Innovation Center in Tunisia.

Senator Pierre Lafitte closed the session by stressing that this is the beginning of a long-term programme of connection. In the field it is very important to show what is to be done: connect as many innovative people from the North and South, shareholders and people from the Mediterranean ring. The difficult issues have been outlined, such as globalization, climate change and the economic crisis. The response hopes to be creative, productive and innovative.

Strategies & Policies for Innovative Cities Networks

As **chairman** and **moderator** of this session, **GIORGIO PRISTER, President of Major Cities of Europe**, Italy, welcomed the participants and briefly introduced the topic of the session. He explained with great competence how to get permanently involved in experiences across Europe by presenting the example of the association Major Cities of Europe.

Major Cities of Europe – IT Users Group is an independent community of local government CIOs and IT managers. Created in 1982, it supports the development and innovation of local governments across Europe by leveraging ICT technologies and solutions. The member cities from all over Europe are early adopters sharing their experiences about leading edge solutions, technologies, business models…

The association's next conference will take place in Berlin from 7 to 9 of June, 2010. The conference will be dedicated to "ICT and the Local Government Transformation in Europe". It will focus on document management, marketing and acceptance of e-Government services, new ways of organizing the delivery of government services, and an integrated city to serve the community and the environment.

The organisation also regularly organises workshops on key topics such as Open Source in government, shared service canters, outsourcing, municipal wireless, e-Administration in action, local government transformation, or the future of the CIO in local governments.

MIHAI CRISTIAN ATANASOAEI, **Prefect of the Bucharest Prefecture, Bucharest City**, Romania, provided a brilliant presentation of a very ambitious project:

The Bucharest Digital Prefecture – e-Government in the Citizen's Interest

In May this year, the Prefect of Bucharest and the Ministry of Communications and Information have concluded the cooperation protocol for a project meant to achieve the inclusion of the prefect institution and its subordinate structures in the National Electronic System.

The project, which is in accordance with European Services Directive 2006/123/EC, is a priority in the Government Programme. It is also part of the integrated programme of the Ministry of Communication and Information Technology's national portal "e-Romania".

The project aims at implementing a citizen oriented prefecture by providing several online applications – allowing to answer online to the citizens, such as online requests, online correspondence, various public form downloads, online perusal of legislative acts, checking the status of the filed state records (complaints). Online file submission and requests will be one of the key applications of the digital prefecture.

The programme is designed to provide several modules: The first one is the „Citizen" module - offering different levels of access: free unauthenticated access and controlled access of different types: for sending enquiries, for complaints or suggestions, for filing additions to the files containing official documents. For some levels of controlled access the sole requirement is identification by username and password, for others, it is mandatory to enter personal identification data (name, identification number, etc.). The data are collected and verified by interfacing with the digital systems of the Registry Office.

The „Prefecture" module will computerize the work flow of institution's documents in relation with the citizens. The „Front Desk" module enables digital document management and electronic transfer of paper documents (for retransmission or electronic archiving). The „Online Payments" module will allow electronic payment for solving certain problems of the citizens in relation with the institution. The „Forum" module is an interactive forum for discussions and information. The „Internal" module will deal with information processing, storage, monitoring, and back-up management. The„Management" module will be the system users' management. It will centralize and analyse citizen complaints. It will evaluate potential risks and generate suggestions for preventive or corrective actions. It will provide statistical data and calculations on the costs of the necessary courses of action.

As it may be inferred from the brief presentation of the seven modules, the project will provide a dual set of benefits: on the one hand, those gained by the institution, on the other hand, the direct benefits obtained by people who interact with the prefecture.

The advantages for the institution as the beneficiary are human resources savings, supply savings and increased environment protection, solutions of time management and workload distribution, increased visibility of prefecture activities, and redundancy elimination.

The advantages for the citizens as beneficiaries are faster response to requests and complaints, 24h accessibility, non-discriminatory access and access for persons with disabilities, essential time savings and less bureaucratic barriers and interactive solutions.

During the **Q&A** of the presentation, the question raised whether there are plans to make sure that the citizens understand the value of the project and that they will use it. Mihai Cristian Atanasoaei explained that the city of Bucharest will rely on a very strong media support to be able to explain the benefits of this system to the citizens. Furthermore, once the system is implemented and running, the benefits will be so immediate and effective that the system should become popular very fast. First positive results should be already visible after the 3 months and hopefully less and less people will come to the administrative offices. Even senior citizens might be able to use the system. It will be important to stay focussed on the objectives of the programme.

RAED ARAFAT, State Secretary at the Ministry of Health, Romania, delivered a passionate, inspiring and thought-provoking talk of

Integrated Emergency Services in Romania

Components of an integrated emergency response system are, among others, access to immediate first response, early defibrillation, advanced life support and in-between all this communication. If certain links between the different components are missing, the system is weak. Therefore, it is not possible to conceive a system for only one or two modules but a fully integrated system in order to have a performing and powerful emergency care system.

Moreover, it is not possible to improve things without having the corresponding legal framework. Thus, during the last 2,5 years, the Ministry of Health worked on legislative aspects such as telemedicine in emergency care, the establishment of competences of different types of teams, or which are the organisations involved in emergency care (for the first time it was considered that it is not only the ambulant service providing public emergency services but also the Ministry of the Interior and its fire brigade).

There are many players involved in the system: the GP, the population, the auxiliary fire brigade, the professional fire brigade doing first response and first aid, the ambulance personnel, the hospitals, the 112 call centre and many more. Three years ago there have been three emergency call numbers in Romania (one for the police, one for the ambulance and one for the fire brigade) – today, there is just one single emergency call number, which is the 112. The idea is to provide a fully integrated management of the entire emergency system through the 112.

The base of the system is the less cost intensive layer, the top of the system concerns the very high performing part (with the intensive care units, hospitals etc) and is much more cost intensive. The intention however, is to develop a performing but cost efficient system.

For instance, the fire brigade has been introduced into the emergency care, which has been a huge debate in Romania. Although enlarging the actual structure of the ambulant service is a much cheaper and a much more efficient way to do things: The fire brigade disposes of resources that are not fully used but which can be involved in the emergency care. For Bucharest for instance, the time of arrival at an emergency has been reduced from several tens of minutes to less than ten minutes by involving 22 teams of the fire department departing from 22 new sites -- compared to the situation before where there were only six ambulant services.

The people receiving the 112 call are dispatching the first response immediately. Behind them are the experts and agencies (ambulances, police, fire department, gendarmerie, …) This is were the decisions are taken in an integrated manner by relying on a high tech integrated system coordinating the different services. Currently the system provides emergency dispatch service for fire and medical services throughout a county. Now the idea is to provide dispatch on the level of a region.

The first response teams and emergency departments are connected to the system. It also enables telemedicine and the possibility to transmit data from the scene in real time from the ambulance to the emergency department. The system also supports mobile intensive care systems which can be dispatched to support emergency teams as well as rendezvous systems allowing to send a doctor to meet a first response team (which might be necessary

due to the long distances). Disaster preparedness is also part of the system. The idea now is to integrate training of personnel into the system.

Technology is very helpful to build an integrated system. However, it is important that everyone involved understands that such system is not an ego-issue but an important means to producing a benefit for the citizens.

During the following **Q&A**, the question how Bucharest succeeds in making so many governmental bodies working together came up. Raed Arafat stressed that at the beginning it was the people who believed in the system, but then it was the power of the example. The example was first implemented in one county and was then copied to two or three further counties. This has been the moment were the citizens asked why certain counties can benefit from such systems and others can not.

ERIC LEGALE, Managing Director, Issy Media, City of Issy-les-Moulineaux, France, provided a fascinating insight in

The Example of Issy-les-Moulineaux

Issy-les-Moulineaux is a medium sized city very closed to Paris. Today, more than 50% of the population lives in cities. Issy is a very active city putting its citizens in the center of its attention.

Issy is a prime example of dynamic development thanks to the strong political will and a large strategy led by Issy's Mayor, the elected representatives and the population. Issy's objective was to use ICT in all areas of the local life and in all segments of the population. The challenge was also to build the administration of the new century: transparent, efficient, and responsive. Today, 80% of Issy's residents have a broadband connection – using ADSL, cable and FTTH without any public financing. The City of Issy-les-Moulineaux never spent any money to create its infrastructure, but relies on a very strong and smart policy to attract private companies.

The official website of the city, issy.com, is in the heart of this strategy. Last year, the website, which provides various service, had 1 200 000 visits – which shows that Issy's citizens visit the web site very frequently (the city has only 60 000 inhabitants). Issy also understood from the beginning that technology can boost attractiveness for innovative companies and new residents. The city provides a wide range of e-services, from cyber-nurseries to cyber-tearooms for elderly people, mobile services, business incubators, video-conferencing between parents and their children in the summer camp, online administrative services, local e-Democracy and many more.

The digitisation of the city on platforms such as Second Life or the French Yellow Pages in 3D, the creation of digital art and the presence of Issy on facebook or twitter confirms the city's commitment to anticipate innovation.

To implement and to keep step with changing technologies, Issy decided to completely outsource its information system. In fact, Issy is the only city in France with an outsourcing system allowing to modernise the network, to update equipment and to offer more and more online services, because it enables city to focus on what is really important: the strategy and the service provided to the citizens.

Issy spends a lot of efforts in making local democracy more transparent via its interactive city council, online citizen panels or the participative budget. Moreover, Issy just launched a new local social network which allows people and politicians to discuss topics of common interest.

The population of Issy has increased by 1/3 (1980: 46 000 inhabitants, today: 62 000 inhabitants) without increasing the size of the city's government. ICT helped to handle this development, which is one of the highest population growth experiences in a French community. At the same time Issy has today 70 000 jobs, which means more jobs than inhabitants. Issy has become home of the headquarters of international companies such as Cisco, hp or Microsoft Europe.

In a few years, Issy will have a new district. A former military fort will be transformed in a green residential area with the residents living in hyper-connected homes. In a few years, Issy will also have true vertical avenues with the help of the famous Japanese architect Itsuko Hasegawa.

Issy is very proud to be part of the top intelligent communities; the city also chairs the international association "Global Cities Dialogue on the Information Society".

During the **Q&A**, the question raised how Issy gets so much commitment from the administration to realise these long-term projects and receive such good results. In most countries the key politicians who are leading the city are changing frequently due to elections. Eric Legale explained that the situation in France might be specific: the Mayor of Issy-les-Moulineaux, André Santini, was elected for the first time 30 years ago. He is also Member of the Parliament since 20 years. It is possible for a politician with a strong will and vision to change radically the situation of a city. During the last 20 years, Issy has completely changed. 40% of the city is completely new compared to the situation 20 years ago.

ODISSEAS V. RAPTIS, Chief Executive Officer, e-Trikala, City of Trikala, Greece, provided a captivating presentation on the establishment of a new city model in Greece:

Innovation and Quality Cities, Servicing the Citizens

Trikala is a medium sized Greek city. During the last three years, the city has implemented a free wireless network all over the city. This network can be considered as the beginning, as it incited people to enter the world of Internet. The network does not provide access to any gaming or pornographic sites or mp3s and the citizens feel safe enough to let their children discover the Net.

Moreover, a local telecare center has been set up. The city provides to disabled people and to people with chronic diseases a small device at home and if these people want to communicate their medical data to their doctor, they can do this directly through the device. For the city, this means no traffic, no accidents, no pollution, no problems for the relatives to bring the patient every two weeks to the hospital, and no waiting time at the hospital.

Another project implemented within e-Trikala is "Dimosthenis" (which means "the strength of the people"). If a citizen has a problem, he or she can declare this to Dimosthenis via email of a free phone number. Dimosthenis is connected to all municipal services. The innovation is that the city follows the problem and once the problem is resolved, the city calls back the citizen to ask whether the person is satisfied or not. This allows the city to monitor and to get statistics on all the small everyday problems a municipality has to solve.

The MobiPARK system enables people to identify free parking spaces, to pay via SMS and the system informs the person about the remaining parking time. Trikala's Intelligent Transport System informs people in real time at which time the next bus to their destination will arrive. The information displayed at the bus station can be also accessed from home via TV – a feature that motivated a lot of people to use the public transport system.

An important tool for citizens and tourists is the city's GIS (Geographic Information System), displaying all relevant information (historical, tourist, health, …).

Within the e-Participation project e-Dialogos all municipal council meetings are directly broadcasted on the Internet. The citizens can either ask questions to the municipal council, participate in debates or the municipal council can address questions to the citizens on how they are imaging the future of their city.

For all these applications, a broadband backbone was needed. Thus the fibre optical Metropolitan Area Network (MAN) has been build up. The MAN does not provide Internet access to homes but connects all public sector points, allowing for instance to retrieve a document from the tax department and then to pay the tax to the municipality.

Trikala is now working on new projects such as Web TV, info tubes, a combined transportation system (monitoring of traffic data, municipal buses, telematic equipment), an educational centre, a Broadband Business Centre (providing teleconference systems, e-services portals, business orientation), rural health centres, digital security (automatic copy of distanced data), the "active citizen" (tele-education, regarding volunteer issues), and many more.

The funding of these applications has been realised via four European framework packages provided to Greece during the last 20 years. The first one does not finance for ICT projects. The second one provides support for IT systems for the country (in house), the third one was designed to finance IT infrastructure and services for municipalities and businesses, the fourth one provides funding for IT services and infrastructure for municipalities. Today, 75-80% of the funding came from the EU, about 20-25% are financed by national funds.

Tomorrows cities need to put emphasis on services related to broadband networks, which will ultimately change due to the development of digital infrastructure. Special emphasis has to be put on the following sectors: communication and participation, focus on servicing citizens, the respect of peoples' special needs and weaknesses, management and marketing, the environmental protection, and the adjustment within Europe.

Two types of interventions need to be taken under serious consideration, technical and administrative ones. Technical interventions mean the expansion of the Metropolitan Area Networks, FTTH, FTTB and the creation of content (entertainment, welfare, public management). Administrative ones mean to prepare public authorities for data input concerning citizens and businesses and to ensure communication among cities and public and private sector, as well as cities and content providers.

The **Q&A** referred to the question whether the experiences made with e-Trikala will be exported to other cities. Odisseas Raptis explained that the projects implemented in Trikala will now be expanded to 11 neighbouring municipalities. 5 million Euros have been made available to implement these projects in the 11 municipalities.

KAO HUI CHUN SHA, Special Assistant General Director Office, Information & Communications Research Lab. – ICL - Industrial Technology Research Institute, Taiwan, presented with great knowledge and attention-grabbing the ground-breaking developments in Taiwan:

WA! M-Taiwan Sailing into the Future

Taiwan is also known as “Formosa” which means “Beautiful Island”. Taiwan is covering an area of 35,980 km^2 and has a population of 23 million people. Taiwan is also the leading global supplier of ICT products and produces more than thirty products ranked top 3 in the world: E.g., Netbook PC (2008 worldwide market share: 99%), Cable Modem (2008 worldwide market share: 90.2%), Motherboard 0.21 (2008 worldwide market share: 92.5%), WLAN NIC (2008 worldwide market share: 89.0%), Notebook PC 0.35 (2008 worldwide market share: 92.5%), DSL CPE (2008 worldwide market share: 77.8%), IP Phone (2008 worldwide market share: 69.1%.

15 years ago, Taiwan was one of the poorest countries in the world. Today, Taiwan is well known for its economic vitality and is one of the leading industrial countries. The country has also been ranked n° 1 for its e-Government platform.

Taiwan is producing a lot of products. However, the profit margin is becoming slimmer and slimmer due to heavy competition and Taiwan decided to move up the value chain and to include value added applications and services. m-Taiwan is a national "initiative" for government and industry to fabric the Blue Ocean of novel applications and services. First, a broadband pipeline has been constructed, in the next step mobile applications have been deployed through dual networks (wireless broadband (WiMAX and WLAN) and cellular networks. The mobile applications cover the following three areas: 1) m-services such as government services, surveillance, m-traffic service and m-medicare; 2) m-learning applications for distance learning; and 3) m-life applications such as IPTV or VoIP.

One example of Taiwan’s m-applications is mobile learning and after school tutoring: Nantou County is famous for its tourist landscapes, but suffers from resource scarcity as it is located in a fairly remote area with no easy access to resources. In order to bridge the digital divide, Chunghwa Telecom cooperates with the National Chi Nan University to promote the application platform for wireless distance learning. Students are now able to log into online courses available on an interactive distance learning platform. Tutors from the National Chi Nan University offer students one-on-one or many-on-many distance tutoring.

As more and more young people leave remote areas to live in cities, mobile healthcare applications become more important to enable elderly people to take care of themselves. Tatung/NEC implemented a WiMAX system in Hualien County resolving the last-mile issue in remote areas. M-security, m-living, m-commerce, and green applications are under deployment, and citizens will soon benefit from these user-friendly services.

In terms of strategies applied, Taiwan created a Taiwan WiMAX Blueprint in 2005 to integrate the government’s policy and provide guidelines for a product focus for Taiwan’s industries, nationwide R&D projects and radio spectrum allocation. Moreover, 10 large scale wireless cities were created as test beds for technology, operation, and business models. Test centers were set up and the M-Taiwan WiMAX Applications Lab established to promote innovative applications and conduct interoperability testing for WiMAX operators.

Partnerships with global leading companies (Intel, NEC, ALU, Nokia Siemens, Sprint Nextel & Starent, etc.) are also an important part of Taiwan's strategy.

Taiwan can offer total solutions from network construction, mobile devices, application services to operation patterns, serving as value experiences for emerging economies short of fixed networks.

JOHN JUNG, Chairman and Co-Founder of the Intelligent Communities Forum - ICF, USA, has taken with enthusiasm the audience on a global tour of intelligent communities, identifying the basis for their success and presenting the key criteria that makes them successful.

Creating an Intelligent City - The Global ICF Experience

The Intelligent Communities Forum has been created in the late 1990s. Up to now, ICF has identified about 90 communities as being intelligent communities.

For instance, the Intelligent Cities Conference 2009 has been organized in Mecca (Makkah), Saudi Arabia. Saudi Arabian cities are very interested in diversification and in the participation in the global broadband economy. The conference organizers have decided to hold the conference in Makkah in order to apply the lessons learned and recommendations from the global experts to help the city deal with its various issues. Some 3.3 million pilgrims descend onto Makkah for one week during the Hajj. Therefore security is a big issue for the city.

The Gangnam District in Seoul, South Korea, has been elected Intelligent Community of the Year 2008. Gangnam District has a broadband penetration of 93%. This could be achieved through strong leadership and strong government-business cooperation. As a result, people can get up to 100 MB/s for less than USD 20 per month. They are able to provide easy access for all systems, but they also promote this.

The City of Taipei itself has also been recognized as an Intelligent Community. Taipei is a good example for strong leadership: it is where the Mayor took hold of certain principles and used them in order to become an Intelligent Community. He is now the President of the country and is using the same principles for the whole country.

In Sunderland in the UK the unemployment rate exceeded 30% in the 1980s. Out of crisis, they looked at a telematic strategy to take them out of the problem. After a couple of years Sunderland reduced the unemployment rate from 30% to only 4% and was ranked one of top five most competitive business locations in UK by KPMG.

Talinn in Estonia is one of the cities coming from "behind the iron curtain". The community has fully transformed in the way that Intelligent Communities do.

Cleveland, Ohio, USA, is a community is filled with companies like IBM, Cisco etc. It is a community that wants to collaborate. The entire region, called "One Cleveland" is a region that collaborates tremendously. The have 66 regional foundations engaging 50,000 area leaders in Internet-enabled "town meetings".

Waterloo, Ontario, is a community that simply is smart. ICF recognized Waterloo, not for efforts to transform a failing economy, but for its commitment to fostering institutions that drive technology innovation and share its benefits with the community at large.

What makes a city successful? Building on a new economy with the elements such as high quality infrastructure (including broadband), exceptional education creating, attracting and sustaining skilled workers, attracting innovation and creativity, superior and inspiring leadership and effective and stable governance, attracting risk capital, promoting digital inclusion, but also ensuring sustainability and effective marketing and advocacy.

ICF tries to talk about communities that are transforming themselves and applying broadband applications and ICT infrastructures in a very unique way. Part of this going through a kind of virtuous cycle: Making sure that the community has the best broadband capabilities, then adding further features such as an university sector or a branch of an university to create a knowledge workforce. By doing this, cities also attract a knowledge workforce. The more difficult part is to retain them and it is important to give them a place to live and to work – a kind of policy where innovation and creativity can be sustained. It is also important to give this opportunity to everyone in the community – this is why digital inclusion, sustainability and leadership are crucial aspects. Finally, the city can go out and market its success.

Big or small – most Intelligent Communities have a “sense of urgency” or are pursuing a strategic direction. They took the decision to actively adapt to new markets and technology forces. Leadership defined a clear vision of the challenge and how it could be met. The communities built a public understanding of the challenge and communicated the urgent need for action. They are characterized by a spirit of collaboration manifested in forums and programs involving government, business, nonprofits and educators and they embraced the Intelligent Communities approach -- not shy to globally market their successes.

The mission of ICF is to identify and share best practices from the world’s Intelligent Communities in adapting to the demands of the global Broadband Economy. ICF has an annual awards programme to support this mission and has just announced the Smart21 Communities of the year. The Top 7 Intelligent Communities of the Year will be announced in January 2010 in Honolulu and the Intelligent Community 2010 will be announced in New York in May.

The **Q&A** referred to the question how cities can apply for the Intelligent Community Award. John Jung stressed that the integrity of the selection process is quite high. Cities have to apply and demonstrate that the city can be considered an Intelligent Community. Through that process the cities will be selected. However, this does not mean that people can not participate in conferences and seminars etc. Quite the contrary, ICF encourages this in order to learn more about best practise cases.

ALAN R. SHARK, Executive Director & CEO, Public Technology Institute – PTI and Assistant Professor, Rutgers University School of Public Affairs & Administration, USA, delivered a most stimulating and well received presentation on the needs and professional development of technology leaders and mangers for cities and counties across the US and elsewhere:

Technology Leadership :
Structures and Skills (How Do We Get There ?)

PTI was created 38 years ago and operates primarily in the U.S. The organisation represents and provides leadership to all cities and counties in the U.S. PTI is an independent non-profit and member supported organisation. PTI has the best and brightest technology leader network, develops research and promotes best practices.

Local governments are facing new challenges in making sure they have the best possible structure to manage technology. With the rapidly changing technology field, local governments must periodically fine-tune their internal governance systems as well as find ways to attract and maintain good technology staff. But when it comes to governance structures: who does all this? Who decides within a given jurisdiction? Is it the Mayor, the county executive, the elected leader or the appointed head? And even if the person is identified: is it an independent model (with one person taking all the decisions), a federated model (with all the different agencies with their own technical expertise making decisions) or a centralized model? There is no one best way.

When it comes to reporting structures, at least one third of technology staff in the U.S. still reports to a chief financial officer, another third reports to or through a deputy and another third reports directly to the chief executive.

Tomorrow's technology leaders need to be technologist not technician; they need to be leader not dictator; they need to be business-minded and not "shoot from the hip"; and they need to be diplomat and not politician. These are four very important factors. PTI's research shows that over 3.5 million government employees will be retiring in the next 2.5 years. Many of these will be leaving the technology leadership ranks and there will be leaving a lot of institutional memory.

The required skill sets of tomorrow are leadership and IT governance, strategic planning and citizen, public and external relations, being able to understanding network security and operations, contract management and human resource development, innovation, learning and nurturing, purchasing and acquisition, and knowledge and records management, enterprise resource planning, communication technologies, financial and performance management, energy and sustainability, and ethics and social equity.

These 15 points have become part of a base curriculum that is being developed now. PTI is working with a number of partners to develop a new curriculum for certification of the next generation technology managers. This will be a system offered online.

The question raised during the **Q&A** was whether PTI is also planning to train the old generation of CIOs? Alan Shark answered that PTI is working on a programme that will take into account the years of service that many people have. PTI is not going to train people to be a certified chief information officer but is going to measure their capabilities to do this. Many people who have done this job for many years have these capabilities. They could also become mentors of the next generation.

PETER HELD, Regional Director Central & Eastern Europe, Proxim Wireless, Germany, [www.proxim.com], provided a first-rate presentation on 4G cost efficient high speed wireless for municipalities and service providers to implement video surveillance, traffic control, security solutions and broadband Internet access:

The Broadband of Tomorrow

Proxim has built an extensive portfolio over the last 27 years. The company worked with partners on numerous networks and holds more than 135 wireless technology patents. As a committed partner to the WiFi forum and a founder member of the WiMAX forum, Proxim is keen to bring sound standards, solid products and wider knowledge to this market and to its over 250,000 customers.

Proxim provides different wireless communication solutions such as Point-to-point connections, which are typically used for the communication between a city hall and the administrative buildings or between small villages. A Point-to-Point connection is a very fast and powerful connection that allows to transfer a couple of 100 MB/s over a couple of kilometres. Broadband-Last-Mile connections are developed out of broadband wireless access solutions, which were initially planned to provide people that cannot access broadband via cable or DSL with wireless broadband access to the Internet. This kind of connection is also used for video-surveillance, park space control, or for communication between vehicles (police cars, ambulances, fire brigade cars…). The typical wireless connection is a WiFi connection used in meeting rooms, in schools, city halls, campuses, hot-spots, airports etc.

Using wireless has a lot of benefits: It is much more flexible than cables, it is more cost efficient, it is easy to install and in general it is also characterized by a faster ROI. Depending on the region, the costs for digging cables in the ground are between 20 and 300 EUR per metre cable. Nevertheless, the use of wires makes sense wherever wire is available. The use of wireless makes sense in situations where wires are not available and a fast and flexible solution is needed.

A case study which has been realised in cooperation with FlashNet is the deployment of municipal wireless in the City of Brasov, Romania. The target was to install a city wide communication solution which is fast and easy to install, flexible and cost efficient. This was done by installing one communication point outside the city which provides the entry to the wireless communication. All the tall buildings in the city are used to communicate with street lamps and then the communication connection goes directly to the households, public parks, private or public offices, emergency vehicles etc.

One of the big challenges to install this communication was that the wireless communication device needs to be implemented on any place around the city. The solution was to install the device on the top of street lamps. However, there was the need for permanent electric energy for the wireless equipments placed on the public lamp posts – and during the day street lamps are generally switched off. The solution was a public lighting management system developed by FlashNet, which benefits both the municipality and the wireless solution provided by Proxim. The system allows the municipality to save costs for the electric energy for public lighting by up to 30%.

Applications that are running on this wireless communication solution are for instance traffic monitoring (cameras) and management (reduce congestions), fixed video surveillance for public places to reduce crime, mobile video surveillance for special events, environment pollution monitoring, communication solutions for public safety (ambulances, police, fire brigade), support for e-Government, e-Health and e-Learning, wireless Internet services with city wide coverage, mobile database access, wireless access for visitors and tourists (hot spots), and last but not least public street lights network management (20-30% energy savings). This case study is a good example for a successful public private partnership with a municipality.

Wireless can help to get communication at places where cable is too expensive to be installed. It provides the possibility to control traffic, to implement security solutions all over the city to implement e-Government applications.

During the **Q&A** the question about the financing of this specific case came up. Peter Held explained that in this particular case, the local community invested the money in the street lightning system where the ROI depends on the energy savings (about 3.5 to 4 years) and the investment in the wireless equipment was done by a private company which is refinancing their investment by selling services (video and security surveillance, as well as the control of the street lightning system) to the municipality and private companies.

DIANA STANGU, Account Executive, Public Sector, Siemens IT Solutions and Services, Siemens Romania, [www.siemens.com], delivered a most captivating speech by presenting a very interesting e-Government solution:

The Virtual City Hall - A Smart e-Government Solution

The traditional way of doing business in city administrations was often characterized by long waiting times, high costs, bureaucracy and inefficiencies. Fortunately in the last years the situation has changed and local administrations took steps to move towards the Information Society and e-Government. A lot of portals appeared and more and more cities are present on the Internet. Unfortunately the information are mainly static, the services and information not always kept up to date, and the services are more process than citizen oriented. The trend on a European and international level the situation is different and cities try to offer seamless electronic processes from end-to-end including transactions and to build up an attractive and interactive up to date web presence.

Siemens created a solution to answer to the challenges public administrations are facing: The Virtual City Hall is a single portal and an interface between public administrations, citizens and businesses, offering services in a way that is convenient to the user. Siemens Virtual City Hall offers seamless electronic processes which are elementary for allowing transaction and interactions between different partners (G2C,G2B,G2G) and an attractive environment for all aspects of business and social life.

In order to explore the potential that e-Government can offer, it is important to migrate from existing city portals to an integrated multichannel platform offering all municipality back office processes. The Virtual City Hall expresses the administrations' changing mindset towards customer centricity through structuring the access to business processes according their customers' needs for ease of interaction, implementing e.g. a single-point-of-contact and life-event approaches.

The Virtual City Hall fulfils both process- and IT-requirements of the city. On one hand, the Virtual City Hall is dealing with important issues such as back-office functionality like document management, workflow systems and archives and the integration of legacy applications as well as single-sign-on and user management in order to allow seamless electronic processes covering any access of citizens and businesses via the portal. On the other hand, the Virtual City Hall easily integrates the IT-requirements into the existing IT-landscape of a city by at the same time ensuring interoperability.

As an umbrella, the Virtual City Hall integrates the pertaining elements of the e-Government framework. The Virtual City Hall is two-fold. On the one hand it acts as an external portal to allow citizens and businesses to access information and services. On the other hand, it serves as a portal within the administration as a gateway to the administrations' Intranet. The implementation of a Virtual City Hall improves significantly the service quality, the efficiency and the transparency of a municipality.

The Virtual City Hall is not just a concept defined by Siemens but a reality and already implemented in different cities worldwide. An example is the Mumbai Virtual City Hall: The vision was to provide efficient service to citizens, business, employees and administration by implementing IT systems to enable municipalities processes and workflows. It was a great challenge in terms of users as the region of Mumbai has 12 million inhabitants. The Virtual City Hall implemented 260 services reshaping the way Mumbai offered its public services. The Virtual City Hall has also been implemented in several cities in Hungary and Poland.

The Virtual City Hall contributes to the three main challenges: quality of service, efficiency and effectiveness and lawfulness.

The following **Q&A** referred to the question whether Siemens plans to deploy the Virtual City Hall in Romania. Diana Stangu confirmed that the Virtual City Hall will also be deployed in Romania and adapted to the needs of smaller communities. The implementation already started with parts of the system – the solution can be implemented as a whole or step by step in a modular way depending on the strategy of the municipality concerned.

ZOLTAN SOMODI, General Manager, Matrix Business Consulting, Former State Secretary in the Ministry of Communications and Information Society, Romania, summarised with great eloquence and clarity the subject of

European Funds for Modern Local Governments

Following its accession in 2007, Romania is eligible for more than EUR 19 billion of the EU's structural and cohesion funds. About EUR 383 million can be used for ICT projects. A very small, but still important part of it, around EUR 119 million, can be used by the central and local administrations for creating electronic public services, e-Government and e-Health projects. EUR 115 million can be used by the private sector; EUR 149 million are designated for using ICT.

There are four major types of projects that can be funded by these structural funds: The first one are classical e-Government applications for central and local administrations, such as online forms. The second one concerns interoperability and is available for central and local administrations who have already existing IT systems and who want to interconnect them.

The third project type concerns e-Education mainly for universities but also local administrations; the fourth programme concerns e-Health applications for hospitals.

Last year the first call for applications was launched and first results are now available: Most of the project proposals have been submitted by local administrations.

117 e-Government proposals were submitted (95% by local administrations, 5% central administrations). 42 proposals have been submitted in the area of interoperability (81% by local administrations, 19% by central administrations). 37 proposals have been submitted in the area e-Education (65% by universities, 35% by local and central administrations). 50 proposals have been submitted in the area of e-Health. A total of 28 projects were selected for funding: 15 e-Government projects and 13 e-Education projects.

There is a lack of local IT strategies in local administrations. Their proposals focussed mainly on back-office applications and not on citizen oriented public online services. Moreover, these local administrations have a problem in providing the budget for the 2% of co-financing needed. There is a lack of internal human resources for the elaboration of the project proposals as well as a general lack of information about other funding programmes.

The **Q&A** addressed the problem that in the past EU funding often was provided to initiate a project, but then the projects never reached their goal. The money provided was used to realise some steps of the projects, but often there was not enough money to complete the project. Zoltan Somodi stressed that Romania has not yet enough experience with EU funded projects to really answer to this question. But there are similar problems in Romania: One of the problems is the lack of medium or long-term strategies. Often the applicants focus on the money when applying for funds and not on the project. Hopefully, the regulation of EU structural funds will allow a better monitoring of the projects.

ISTVAN BESENYEI, Country Manager, VAMED, Romania, gave an excellent and very rich overview on the PPP models in the healthcare sector:

Public Private Partnership: A New Approach in Healthcare

The Public Private Partnership Model of VAMED is a holistic model based on a lifecycle approach. A good sound preparation is the basis for a successful Public Private Partnership. Motivation includes transparency of the problem solution (i.e. solving of revitalisation accumulation, improving the budget situation, quick realisation), maintaining the value of buildings on the long run and effective building management. Decision-makers (politicians, ministers, etc.) and users have to be involved as early as possible and users to avoid resistance and mistrust due a lack of knowledge. Furthermore, it is important to carry out a comprehensive stock analysis and to appropriately share the risks already in the preparation phase. External consultants should be involved to cover technical, economical and legal challenges.

Public Private Partnerships in hospitals are predominantly a model for cooperation -- a long term collaboration of two partners sharing risks and credits in the everyday life.

A general model of a PPP was presented where a public entity and a private partner set up a project company. The project company gets its funding through the daily business of the

DRG financing and the project receives funding from the banks. The project company is responsible for operations, realisation and financing.

The success of the private public model is based on a daily sharing of tasks in the company. It is important that in all these models the public entity is always responsible for what they can do best, so it can provide the medical care, education or research, while the private partner in the project company provides the services, such as technical or project management, purchasing, materials management, logistics, catering etc.

The main benefit in this partnership is that each partner is taking care of its core business. The hospital is in charge of the healthcare while the private body takes care of all the support services. It is a kind of shift from the old business model to a new one. Experience has shown that once some preconditions are fulfilled, the project can easily be successful. These preconditions are: interactivity at rendering medical and support services, the use of professional IT-tools, consistent documentation, dynamic adaptation of fees over time, and the establishing of incentive schemes to increase willingness for optimisation (i.e. remuneration modalities).

The general procedure from the concept creation to the regular operation of such PPP contains different steps such as model layout, the tendering procedure, formation of the project entity, project start and planning, construction and finally the operation.

Successful PPP experiences already created are the Provincial Hospital Vöcklabruck in Upper Austria, the Provincial Hospital Steyr in Austria, the Trauma and Emergency Hospital Linz in Upper Austria, the Regional Hospital Schladming, Styria, the Psychosomatic Center Eggenburg in Lower Austria, the Thermal Spa Laa a.d. Thaya in Lower Austria, and the Charité in Berlin, Germany.

The **Q&A** of the presentation referred to the question about the future plans related to Romania. Istvan Besenyei answered that he strongly believes that knowing the financing issues of the public healthcare establishment of different projects based on PPP models represents an opportunity for Romania. However, there are some issues regarding the existing legal provisions which have to be amended to support financings through the private sector. As financing always bears a risk, another issue concerns very transparent legal provisions for risk sharing in PPP projects.

--- ✦✦✦ ---

The first question of the concluding **Q&A** was addressed to Eric Legale. It concerned the outsourcing of the city's IT-information system: What is the most positive and what is the most negative aspect, what are the costs and what about flexibility? Eric Legale stressed that before the outsourcing, an internal team of 15 people have been employed. These 15 persons spent their time going to the offices and help people turning computers on. The average of new projects per year has been 3. After the outsourcing, there are 3 persons in the city hall in charge of the IT-system and Issy has 15 new projects per year – while the costs remained the same. As far as the city of Issy-les-Moulineaux is concerned, there is no negative aspect. Today, 3% of the municipal budget are spent on the IT-strategy of Issy. This is quite a lot compared to the French average of 1-2%.

The following question referred to leadership, which is an important aspect of all the projects presented by the panellists. The question was what makes the leadership able to prevail and have this happening in the projects. What are the advices the panellists can give to leaders in other cities? Eric Legale answered that in Issy, it is the Mayor who strongly believes in innovation. He always says that innovation is life and if Issy stops to innovate, the city will die. The most important driver for Issy is to be always innovative – not only in the area of ICT but also in every other area of the life. If leaders are able to thing like that, the projects will succeed. John Jung stressed that in the projects ICF looks at, leadership is a major component. But leaders do not come always in the same size and shape and form. Any community needs leadership at the political level, but it is surprising to see how many leaders come out of universities, chambers of commerce or businesses – who then inspire and take hold of a particular project and move it forward and sometimes have to drag along the politicians and financers to make it happen. Leadership sometimes has to be created in a community, it is not always there.

Another question referring to the economical success of Issy was addressed to Eric Legale. The questioner would like to know how Issy managed to attract the headquarters of all the large companies to settle in Issy and not in Paris. Eric Legale answered that it is exactly as John Jung mentioned earlier: It is from broadband to infrastructure and from infrastructure to marketing. The most important aspect is to provide the right environment and infrastructure. But Issy is also working a lot with communication and marketing. Everything that is realised in Issy is communicated. Thus, Issy has succeeded in creating a very strong image in France in the area of IT. Moreover, the Mayor of Issy is strongly involved in both the economic development of the city and the city's communication.

CONFERENCE DOCUMENTATION

All conference documentation, including programme, presentations and slides, speakers' profiles, participant's testimonials, and related information on the Global Forum 2009 are made available for download on the website of ITEMS International http://www.items-int.eu.

HAVE A QUESTION OR COMMENT?

Please do not hesitate to contact ITEMS International if you need any help to get in touch with the participants of the Global Forum/ Shaping the Future.

ITEMS International
– Global Forum/ Shaping the Future –
6, rue Jean-Baptiste Potin
92270 Vanves
France

Tel: +33 (0) 1 46 42 48 76

Dr Sylviane Toporkoff, President of the Global Forum/Shaping the Future
stoporkoff@items-int.eu
Sébastien Lévy, Vice President of the Global Forum/ Shaping the Future
slevy@items-int.eu

Your feedback is important to us and we would be pleased to receive your comments on this year's Global Forum as well as suggestions for the upcoming Global Forum 2010.

The team of ITEMS International will be pleased to answer any question and to provide you with more information about the Global Forum 2010.

Please make sure to check our website regularly for updates.

acronyms & abbreviations

ADSL	Asymmetric Digital Subscriber Line
AGM	Annual General Meetings
APEC	Asia Pacific Economic Cooperation
ARPU	Average Revenue Per User
ARRA	American Recovery and Reinvestment Act
B2B	Business to Business
CAPEX	Capital Expenditures
CATV	Cable Television
ccTLD	country code Top-Level Domain
CDMA	Code Division Multiple Access
CEO	Chief Executive Officer
CEPT	European Conference of Postal and Telecommunications Administrations
CIO	Chief Information Officer
CMP	Chip Multi-Processing
COPD	Chronic Obstructive Pulmonary Disease
CRM	Customer Relationship Management
CT	Computed Tomography
DG	Directorate General
DNS	Domain Name System
DNSSec	Domain Name System Security Extensions
DRG	Diagnosis-Related Groups
DSL	Digital Subscriber Line
DVB	Digital Video Broadcasting
EBR	Europe Bio-Region
EC	European Commission
ECG	Electrocardiography
ECS	Electronic Communications Services
eID	electronic Identity
EMEA	Europe, the Middle East and Africa
ENISA	European Network and Information Security Agency
EU	European Union
EU 27	European Union with 27 Member States
EUR	Euro
EUReID	European eID Observatory
FCC	U.S. Federal Communications Commission
FDD	Frequency-Division Duplexing
FIFA	Fédération Internationale de Football Association
FiOS	Fiber Optic Service
FP	Framework Programme
FTC	Federal Trade Commission
FTTB	Fibre To The Building
FTTH	Fibre To The Home
FWA	Fixed Wireless Access
Gbps	Gigabits per second
GDP	Gross Domestic Product
GHz	Giga Hertz
GIS	Geographic Information System

gTLDs	generic Top-Level Domains
GP	General Practitioner
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
G2B	Government to Businesses
G2C	Government to Citizens
G2G	Government to Government
HC	Healthcare
HCPO	Health Care Professional Organization
HR	Human Resources
HSPA	High Speed Packet Access
HSPA+	High Speed Packet Access evolved
HTML	Hyper Text Markup Language
ICANN	Internet Corporation for Assigned Names and Numbers
ICT	Information and Communication Technologies
IDNs	Internationalised Domain Names
IGF	Internet Governance Forum
IP	Internet Protocol
IPR	Intellectual Property Rights
IPTV	Internet Protocol Television
Ipv4	Internet Protocol version 4
Ipv6	Internet Protocol version 6
ISP	Internet Service Provider
IT	Information Technologies
ITU	International Telecommunication Union
ITU-R	ITU Radiocommunication Sector
Kbps	Kilobits per second
LTE	Long Term Evolution
Mbps	Megabits per second
Mbit/s	Megabits per second
MAN	Metropolitan Area Network
MD	Doctor of Medicine
MHz	Mega Hertz
MoU	Memorandum of Understanding
MP3	MPEG-1 Audio Layer 3
MRI	Magnetic Resonance Imaging
mW	Mega Watt
NAC	Network Access Control
NHS	National Health Service
NIDP	National InfoCom Development Plan
NGA	Next Generation Access
NGN	Next Generation Network
NGO	Non-Governmental Organization
nm	Nanometers
NTIA	U.S. National Telecommunications and Information Administration
NYPD	New York City Police Department
OECD	Organisation for Economic Co-operation and Development
OPEX	Operating Expenditure
PC	Personal Computer
PDA	Personal Digital Assistant
PII	Personally Identifiable Information
PoC	Proof of Concept

PPP	Public Private Partnership
P2P	Peer-to-Peer
Q&A	Questions and Answers
QoS	Quality of Service
R&D	Research and Development
RFID	Radio Frequency Identification
RISEPTIS	Research and Innovation for Security, Privacy and Trustworthiness in the Information Society.
ROI	Return of Investment
RSS	Syndication of Web content
RTD	Research and Technological Development
RUS	U.S. Department of Agriculture's Rural Utilities Service
SCADA	Supervisory Control And Data Acquisition
SSL	Secured Socket Layer
SME	Small and Medium-sized Enterprises
SMS	Short Message Service
TLD	Top-Level Domain
TSO	Transmission System Operator
TV	Television
TWh/year	Tera-Watt hour
UHF	Ultra High Frequency
UK	United Kingdom
UMTS	Universal Mobile Telecommunications System
UN	United Nations
US	United States
USA	United States of America
USD	U.S. Dollar
VDSL	Very High Bitrate Digital Subscriber Line
VoIP	Voice over Internet Protocol
WAPECS	Wireless Access Platforms for Electronic Communications Services Management
WHO	World Health Organization
WiMAX	Worldwide Interoperability for Microwave Access
WSIS	World Summit on the Information Society
WLAN	Wireless Local Area Network
WWW	World Wide Web
W3C	World Wide Web Consortium
XML	Extensible Markup Language
3G	Third Generation
3G+	Third Generation evolved
4G	Fourth Generation

Organizers

ITEMS INTERNATIONAL

MINISTRY OF COMMUNICATIONS AND INFORMATION SOCIETY

ANCOM
National Authority for Management and Regulation in Communications of Romania

FONDATION SOPHIA ANTIPOLIS

Partners

European Commission

SRI

FNTM

AM CHAM

American Chamber of Commerce in Romania

AMR

Main sponsors

IBM

ROMTELECOM business solutions

COSMOTE

Microsoft

verizon

consip

SIEMENS

at&t

VISA

ERICSSON
TAKING YOU FORWARD

european privacy association epa

EADS

hp

HUAWEI

intel

QUALCOMM

OMNILOGIC

Afilias

WHITE & CASE

VMB PARTNERS S.A.

proxim wireless

Postelink

veryPC

Supporting sponsors

IS-practice
Program Management in Information Society

Wethington International LLC

global cities dialogue

pti

MAJOR CITIES OF EUROPE IT USERS GROUP

RIE-EIN

ENSA
EUROPEAN EDUCATION NEW SOCIETY ASSOCIATION

Gov2u

European-American Business Council

ANUIT

POLITECH
Political Technologies

Media partners

ZIARUL FINANCIAR

BUSINESS magazin 5 ani

Gândul

MONEY

REALITATEA.NET

MONEY.ro

THE MONEY CHANNEL

Standard

THE DIPLOMAT

Agora