GLOBAL FORUM
Shaping the Future
2011

VISION FOR THE DIGITAL FUTURE

Mobilizing Organizations and People for Sustainable Growth

Conference Proceedings

Monday, November 7, 2011
Tuesday, November 8, 2011

Palais d'Egmont,
Ministry of Foreign Affairs
Brussels, Belgium

Organizers

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acknowledgements

During the past two decades, the Global Forum has become an internationally recognized Think Tank for exchange and networking among governments, business and science and we would like to take this time to thank all the many people and organizations who helped us making this 20th edition of the Global Forum another success.

The Global Forum 2011 took place on 7th and 8th November 2011 in the splendid Palais d'Egmont in Brussels, Belgium, and we would like to express our sincerest thanks to the Belgian Ministry of Foreign Affairs for hosting this event.

In its twentieth year, the conference was once again a great success. It brought together over 350 high level delegates -- policy makers, senior executives and thought leaders drawn from the academic, government, and private sector, from more than 30 countries all across the world.

The Global Forum is the result of preparations in which the partners, sponsors, panel chairs, moderators and the speakers of the sessions have all been active participants. Without their commitment and dedication it would not have been possible.

We would also like to thank our distinguished experts – moderators, panel chairs and speakers, who have taken time out of their extremely busy schedules to share their knowledge and expertise with us.

Special thanks to our Brussels partner, IS-Practice, a program management office for Information Society Projects.

Special thanks for their great support to the European Commission, the Belgian Federal Authorities, the Flemish region and Parliament.

Last but certainly not least, we would like to extend a special thanks to

The main sponsors of the Global Forum 2011, which are:

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Once again, thank you all and looking forward to seeing you all next year in Stockholm!

Sébastien Lévy
Vice-President of the Global Forum

President of the Global Forum

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Sébastien Lévy, Vice President Global Forum / Shaping the Future & Partner Items International, Administrator Silicon Sentier, France

Frank Leyman, Head of International Relations, FEDICT, Federal Public Service, ICT

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Christopher Boyer, Assistant Vice President Public Policy, AT&T, USA
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Christa Menke-Suedbeck, Chief Data Protection Officer, Deutsche Bank AG, Germany
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Steve Purser, Head of the Technical Competence Department, European Network and Information Security Agency - ENISA
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William Sloan Coats, Partner Intellectual Property, Attorney at Law, Kaye Scholer LLP, USA
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Denis Gardin, Senior Vice-President, Head System Design Centre and CyberSecurity Customer Solutions, Cassidian an EADS Company, France
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Ken Ducatel, Head of Unit, Digital Agenda: Policy Co-ordination, DG INFSO, European Commission
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Ao (Leo) Sun, President of Brussels Office and European Affairs Dept, Huawei Technologies
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John Vassallo, Vice-President EU Affairs, Microsoft EMEA
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Geert Mareels, eGov Manager, Flemish Government, Belgium
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Erik R. van Zuuren, Director Deloitte Enterprise Risk Services, Belgium
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Paul Timmers, Director Directorate H: ICT addressing Societal Challenges, DG INFSO, European Commission
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Moderator: **Jay E. Gillette**, Professor of Information & Communications Sciences, Center for Information & Communication Sciences, Ball State University, USA

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Bosco Eduardo Fernandes, Head of Corporate Research, Huawei European Research Centre, Germany
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Carl Wickman, Director & Head of Services & ICT Division, VINNOVA, Sweden
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Eric Legale, Managing Director Issy-Média, City of Issy-les-Moulineaux, France
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Jean-Marc Merriaux, ICT Division Director, Universcience, Cité des Sciences et de l'Industrie, France
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Bartolome Arroyo-Fernandez, Head of Unit, Networked Media Systems (acting), DG INFSO, European Commission
Social Media: Policy & Research Issues

Andrey Korotkov, Professor, Head Dept of International Journalism, MGIMO University; Former Deputy Minister of Communications and Informatization of RF, Russia
Social Networking 2020

Linda McCormack, Head of Professional Services Communications Practice, Verizon Business EMEA
Explosive Growth in Social Networking

Erika Mann, Head of EU Policy Brussels, Facebook; ICANN - Board of Directors

Jon Shamah, Head of EMEA Sales, Nets eSecurity, United-Kingdom
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Alfredo Ronchi, General Secretary of EC Medici Framework, Politecnico di Milano, Italy
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Chair & Moderator: **Elena Bonfiglioli,** Senior Director Health, Public Sector, Microsoft EMEA

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Maria Iglesia-Gomez, Head of Unit Strategy and Analysis, DG SANCO, European Commission
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William Long, Counsel, Sidley Austin LLP, United-Kingdom
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Elinaz Mahdavy, European Affairs and Strategic Partnerships Manager, Orange Healthcare Division, Belgium
mHealth Solutions: From Dreams to Reality

Mario Po', Executive Director of Health Local Authority (ULSS n. 8) of Asolo, and **Paolo Barrichello,** Responsible for the Informatics Unit, ULSS n. 8 of Asolo, Italy
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Giuseppe Novelli, Head of the Human Genetics Research Unit, The Tor Vergata University of Rome, Italy
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Hercules Dalianis, Professor in Computer and Systems Sciences, Stockholm University, Sweden
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Speakers:

John G. Jung, Co-Founder and Chairman, Intelligent Community Forum & President, Intelligent Community Forum Foundation, USA
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Alain Viallix, Director Public Affairs, Alcatel-Lucent, France
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Antonio Salvatore Graziano, Vice-President European Public Affairs and Communications, Huawei, Belgium
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Etienne Gehain, R&D Coordinator, Corporate Smart Energy & Environment, Research & Innovation Division, GDF Suez
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Herve Rannou, President Items International, France
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Alfredo Riccio, President of Fondazione Italiana Nuove Comunicazioni; Administrator Unico de Cartesia, Italy
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David Wood, Councilor, Newcastle Upon Tyne City Council, United-Kingdom
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Chair:

Thaima Samman, President, European Network for Women in Leadership

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Elena Bonfiglioli, Senior Director Health EMEA, Microsoft
Brigitte Dumont, Deputy Group HR, Executive Vice-President France Telecom, France

Speakers:

Mary Honeyball, Member Committees on Culture and Education & on Women's Rights and Gender Equality, European Parliament from United-Kingdom

Cecilia Castano Collado, Full Professor, Universidad Complutense de Madrid, Spain

Samia Melhem, Senior Operations Officer Global ICT Department, World Bank Group

Ingrid Andersson, Senior Executive Advisor, Patient Certificate Scheme, Sweden

Jo Perrin, Director, International Public Relations, Asia-Pacific, EMEA and Latin America, Verizon

Margot Dor, Director Partnerships & EU Affairs, European Telecommunications Standards Institute

Alison Birkett, Asia Coordinator, Japan, Korea; UN Broadband Commission DG INFSO, European Commission

Katherine Corich, CEO Sysdoc, United-Kingdom

Sabine Lochman, General Manager, Johnson & Johnson MD&D, France

Isabella de Michelis di Slonghello, VP, Public Policy & Government Affairs, Europe, Middle East & North Africa., Qualcomm

Aurélie Feld, Deputy Managing Director, PlaNet Finance, France

Marie-Hélène Briens, Sales Manager, Top Markets, France Télécom, France

Chair: **Hervé Rannou,** President Items International, France

Moderator: **Bertrand de la Chapelle**, Member of the Board, ICANN

Speakers:

Jakub Boratynski, Head of the Unit, Directorate A, Fight Against Organized Crime, DG Home Affairs, European Commission

Mathieu Crédou, Business Manager, AFNIC, France

Brian Cute, CEO, The Public Interest Registry – PIR, USA

Keith Drazek, Director of Policy, Verisign, USA

Thomas Lenz, Founder dotKoeln, Germany

Desiree Miloshevic, Senior Public Policy and International Affairs Adviser, Afilias, Ireland

Olof Nordling, Director, Services Relations and Branch Manager, Brussels Office, ICANN

Martin Sutton, Manager, Fraud Risk & Intelligence, HSBC, United- Kingdom

1. Introduction: (**Thomas Andersson** – IKED/GINI; **Pasi Lindholm** – NorthID/GINI)

2. Panel I – Policy Hearing: Enabling User-centric Identity Management Solutions: Recommendations for Policy

a. The EU regulatory framework accompanying user-centric IdM (**Brendan Van Alsenoy** – ICRI, K.U. Leuven – IBBT /GINI)
b. Privacy challenges and solutions within the INDI ecosystem (**Kai Rannenberg** - Goethe University, Frankfurt-am-Main/GINI)
c. Comments by panellists (**Jos Dumortier** – ICRI, KU Leuven –IBBT ; **Jacques Bus** - DigiTrust.U; **Jan Schallaböck** - Data Protection Agency, Schleswig Holstein, appearing Pro Bono; **Aaron Martin** - London School of Economics & Political Science)
d. Open discussion needs for (or lack thereof): policy initiatives; regulatory intervention; bottom-up self-governance; hybrid approach.

3. Panel II - Business Hearing: Towards Viable Business Models in Identity Management within the INDI Ecosystem

a. Introduction to the INDI ecosystem topology and Operator models (**Lefteris Leontaridis** - IKED/GINI; **Pasi Lindholm** - NorthID /GINI)
b. Comments by panellists, representing industry and user perspectives (**Olli Jussila** – TeliaSonera; **Takis Damaskopoulos** –Open Innovation Strategy and Policy Group; **Patrick Curry** - British Business Federation Authority - BBFA; **Steven Adler** – IBM)
c. Open discussion, what is required for a business model to work out in practice: Viable business models in sight? How facilitate their emergence?

4. Conclusions from the two hearings and next steps

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.

2011 Vision for the Digital Future – Brussels, Belgium

2010 ICT for an Empowered Society – Washington DC, USA

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 - US 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 XXth Global Forum took place on Monday, 7th and Tuesday 8th, November, 2011, in the *Palais d'Egmont* in Brussels, Belgium. It was the second time that Global Forum convened in this magnificent place.

The Global Forum 2011 attracted more than 350 high-level delegates from the world of politics, the business community, and academia for a two-day discussion on latest achievements and ongoing developments in the world of ICT. 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:

Vision for the Digital Future –
Mobilizing Organizations and People for Sustainable Growth.

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 if you wish 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 2011 are listed in chronological order corresponding to their sequence in the final conference programme, as listed in the beginning of the present document.

Executive Summary

(by Prof. J.-P. Chamoux Université Paris Descartes)

2011 GLOBAL FORUM: VISION FOR A DIGITAL FUTURE

Palais d'Egmont, Ministry of Foreign Affairs Conference Center, Brussels, Belgium

November -6th. to 8th. 2011

A very distinguished set of delegates attended this 20th. *Global Forum* gathered in the remarkable Brussels Foreign Service Palace hosting more than 350 delegates coming from almost all continents of the World. This very international crowd coming from America, Europe, Asia and Africa included respected representatives from governments, regulators, international bodies, professional association and the business community among which thirty five posted sponsorships from the global information industry and many community supports.

The 2011 Global Forum dealt with the digital future of our society. Several policy questions were on the agenda this year including: a/ intelligent platforms operation and the relevant regulatory schemes; b/ data governance and data protection of digital assets concerning individuals and businesses as well; c/ e-Government developments at all political levels (local, regional, national and supra-national bodies) and intergovernmental interoperability; d/ the regulatory environment of IT and the respective energy savings driven by new processes, research and green technologies; and e/ e-Procurement.

Keynote sessions on Monday Nov. 7th. and Tuesday Nov. 8th. drew the attention on usage and technology developments underway at a global level confirming the growing media and IT convergence witnessed over the recent years. Representatives from Europe, the US and Asia discussed the points raised in the context of anti-trust legislation on one hand, and a specialized regulatory framework on communication and media on the other hand. The speakers addressed the complex and sometimes delicate issues raised by net neutrality in a digital environment, as well as the potential impact of ICT developments on business transformation and market structures on the one hand, and means to boost economic growth on the other hand.

The quick extension of IT services on the cloud was considered under several headings: privacy questions of interest for the general public; data security for proprietary information, processes and files for the business community; open data concerns among citizens and political representatives almost in all parts of the world.

Reminding some of the research and analysis done in the years 1970's to 1980' vulnerability analysis of the digital society was also scrutinized in the perspective of natural or manmade disasters, notably enhanced since the dreadful and costly consequences of the Japanese tsunami last winter (March.2011): recovery from disasters is becoming a real concern for public and private decision makers on networks, cloud computing and operations. Similarly, many of the questions raised by the extension of social networking were examined during the Global Forum.

The Global Forum also included a special session on women empowerment for the second time this year. High ranking executives from the industry and from the government exchanged their views during this original session that stressed the upcoming role women play in all sectors of the digital environment, from the production line to the users, players and consumers living in the digital world! The Forum closed with a session elucidating opportunities and challenges related to the new generic Top Level Domain programme launched to transform the brand marketing landscape. In addition to this, a special session dedicated to the European GINI Supporting Action was organized. A panel of experts representing research institutions and the private sector summarised the salient objectives of the project and answered questions from the floor.

The Global Forum has been an open meeting place for policy makers, strategists and academics to freely exchange their views on IT development during the last twenty years. Topics selected for discussion are mainly related to technology, usage and public and/or industrial policies.
Founded by Sylviane Toporkoff & Items int'l in 1992, the Forum meets yearly in rotating locations where information and communication technology are at stake. Delegates come from everywhere on earth provided they bring their knowledge as well as their ability to feed the discussion on the questions chosen for the Forum agenda.
The Global Forum is sponsored by local or national Governments, agencies & regulators, as well as professional associations, academic institutions and international bodies like the European Commission. ICT industries, operators and consulting firms also support the Global Forum on a regular basis.
The 2012 Global Forum will meet in Stockholm, Sweden, early November 2012.

JPC, *November* 10th 2011.

WELCOME EVENT

CONFERENCE EVE

A Welcome Event was organized on Sunday evening, November 6th, on the aegis of Minister Geert Bourgeois, Vice-Minister President of the Flemish Government. The Welcome Event took place at the Flemish Parliament in Brussels.

Bart Huybrechts, Deputy Chief of Cabinet, welcomed the participants on behalf of Minister Geert Bourgeois, Vice-Minister-President of the Flemish Government and Flemish Minister for Administrative Affairs, Local and Provincial Government, Civic Integration, Tourism and the Vlaamse Rand. He opened the Global Forum with a particularly committed talk on

"Citta Ideale":
Helping local governments to provide better services and to achieve their goals by using modern technology

The Flemish Government is involved in the "Citadel Statement" and the "Citadel on the Move" European project co-funded by the European Commission.

The Citadel Statement was launched in December 2010 with the support of 64 organizations – including every major local government association in Europe – from over 200 cities across five continents. It urges the EU and national decision makers to provide tangible support for local eGovernment in five key areas:

1. Common Architecture, Shared Services and Standards
2. Open Data, Transparency and Personal Rights
3. Citizen Participation and Involvement
4. Privacy and Identification of Individuals
5. Rural Inclusion

The launch of the Citadel Statement generated widespread interest across Europe from sponsor organizations and external observers. Senior officials at the European Commission have called the Statement "an excellent piece of work," and have asked to "work with those supporting the Citadel Statement in order to re-use the knowledge and experience available via the various organizations of local and regional administrations."

In most countries throughout Europe, local governments have the closest contact with citizens and businesses, and are the front players for the service delivery to them. The Citadel Statement is a pan-European declaration that aims to identify what local governments need to deliver to meet the vision set forth by EU Ministers in the Malmö Declaration.

The name Citadel Statement refers to the European pre-conference the Flemish government organized during the Belgian Presidency of the European Union in 2010. The event was organized in the conference centre 'the Citadel Park' in Ghent. More important is that Citadel comes from "Citta Ideale", Italian for the 'ideal city'. Citta Ideale and Citadel fits perfectly with our ambitions: to help local governments to provide better services and to achieve their goals by using modern technology.

The goals of the Citadel Statement are perceived to be very important, but until now each community, big and small, has to face this challenge and the problems on its own. It is an obvious priority for the Flemish government to support local communities in their eGovernment policy.

The Flemish government is not only writing statements and planning but in a modest way is already implementing the recommendations of the Citadel Statement. Some applications are already offered for free to the communities. The Flemish government has opened its contracts with ICT and telephony providers to the local governments so they can also profit from the good conditions because of the scale of the Flemish government.

The Citadel Statement now resulted in the "Citadel on the Move" project. Citadel on the Move is a European project coordinated by the Flemish eGovernment administration with the co-operation of 15 partners and cities like Manchester, Gent, Issy and Athens. It was developed with the intention to advance the Citadel Statement.

Citadel on the Move will unite Europe's leading local government organizations with Living Lab experts, ICT specialists and researchers and expert SMEs in a common effort to harness the power of 'Open Data' and User-Driven Innovation Systems to develop 'high speed' Mobile Applications that can be shared by citizens across Europe. In doing so, Citadel on the Move aims to help deliver on the key objectives of both Malmö and the Citadel Statement by empowering citizens to use open data to create 'smart' mobile applications that can be potentially shared across Europe cities – large and small.

Nowadays, mobile phones and smart phones are widely used and hold one key to ensure e-inclusion for every European citizen. At the same time social media and the evolution towards more open data are rapidly joining together to unleash the tremendous innovation potential of citizens to build the type of mobile services they want and need. Three major gaps must be filled to realise this potential:

Technology: there is a need for standard mobile applications that citizens will be able to access easily and use anywhere,

Innovation: there is a need to create a specific link between the Living Labs, open data and the Mobile world

Open data: there is a need for standard templates to aggregate data from various sources and transform it into a publicly useable format – or move beyond 'open data' towards 'open access.'

The goal of Citadel on the Move is to demonstrate that it is possible to combine open access data and mobile application tools to create 'smart', innovative citizen-generated services that can be used in differed European cities, big and small. The goal is to support, in a digital way, the European integration. In doing so, Citadel on the Move aims to help deliver on the key objectives of both Malmö and the Citadel Statement.

The Flemish strategy is clear: eGovernment is not "digitizing bureaucracy". The objective is to lower the administrative burdens and increase the government service level by using modern technology, changing from passive public service into proactive rights and as soon as possible comply with the principle: "don't ask what the government already knows". The Flemish government is not only aiming to improve the efficiency of the government itself, the

real goal is to improve education, environment, mobility and so on. The government's programme is already very ambitious in fields like e-learning, e-health, e-mobility. Conferences like this can inspire to go further in that direction.

The Flemish eGovernment Authority, CORVE, is part of the soon to be established Flemish Information Authority and will continue to drive the overall innovation effort. The MAGDA platform from CORVE was a pioneer some years ago but now still integrates and shares data in a "classical way". It will be transferred to an open innovation environment:

- With respect for the sensitivity of the data and the privacy of the users,
- Aware of the need for organizational mechanisms to guarantee the quality and "linkability" of the data,
- And able to integrate data coming from different data sources.

Opening Session Day 1

SYLVIANE TOPORKOFF, President of the Global Forum / Shaping the Future, Founder and Partner of Items international, Professor at the Institute of European studies, University of Paris, France, welcomed the participants and opened the XXth edition of the Global Forum.

Convergence has always been a hot topic during the last Global Forums, but we finally arrived at a point where we can really see actors acting globally while at the same dealing time with infrastructures, services for private and public organizations, mobility, open data, security etc. This requires to discuss and rethink many issues and brings up new questions related for instance to standards, interoperability, regulation, new economic models, or innovation.

The agenda of the coming two days is pretty full and some might consider the speaking slots as rather short. However, this only reflects the number of actors that are necessary to implement the digital future, its complexity and its vitality.

Finally, a big thank you was given to the sponsors who offered the possibility to organize this Global Forum in Brussels.

FRANK LEYMAN, Head of International Relations, FEDICT, Federal Public Service, ICT wished a warm welcome to the participants of the Global Forum.

He expressed his honour, as Manager of international relations for Fedict and representative of the hosting country, to declare this conference open. He underlined that he was both honoured and enthusiastic – not simply because the programme and the list of guests look extremely promising, but also because being able to welcome the attendees in this stunning setting at Egmont Palace.

The Egmont Palace, an extraordinary building, dates from the 16th century and has been owned by the Belgian State since 1964, which thoroughly restored it after a period of decline and neglect. Part of the Federal Public Service for Foreign Affairs has been located here since the 1970s, but the building itself has always been the centre of diplomatic activity in Brussels. Various notable personages have stayed in this building, such as Queen Christina the First of Sweden (in 1655), King Louis XV of France, Czar Peter the Great, the Thurn und Taxis family, Jean-Baptiste Rousseau and even Voltaire. Important agreements concerning Belgium's State reform were signed here.

Today, senior foreign guests and Belgian politicians are still received in the palace's sumptuous reception rooms and high-level conferences are also held here. I hope that this prestigious setting will also inspire this meeting of the Global Forum.

Belgium fully supports the objectives of a think-tank such as the Global Forum. In Belgium too, cooperation is crucial – Belgians want to make progress in the domain of the Information Society and think seriously about how to shape our digital society in the future. Belgium operates under a federal model and is divided into Communities and Regions, each with their own needs, priorities and specific contexts. In that sense, Belgium is a microcosm of Europe. In order to prevent each entity having to invest separately in similar technologies and applications, consultation and cooperation is absolutely essential. “Fedict" – which is an acronym for the ICT Ministry – is working to be the bridge between the various administrations and shares its services with all parties to improve the government's provision of services for citizens and in this way stimulate the development of the Information Society to best advantage.

The policy set out by the outgoing caretaker minister, Vincent Van Quickenborne, is focussed on the further expansion of a successful Information Society. He expounds this policy in his 2010 Digital Plan in 30 points for action. This plan focuses mainly on encouraging fair competition between the players on the ICT market, the development of applications for efficient e-government and security and legislation are also major components of his Digital Plan.

Belgium is a small country at the heart of Europe. For this reason Belgium, even more than other countries, has been focussing on international cooperation. European Commissioner Neelie Kroes expounded the digital agenda for 2010-2020 during the “Lift-off towards open Government” conference, which Fedict organised in December 2010 in the context of Belgium’s presidency of the European Union. Here too, the emphasis is on cooperation and security; on closing the digital gap between the various economic and social population groups and between the various Member-States themselves; on stimulating the development and spread of new technologies. All these elements are a constant worry for us and oblige us to keep questioning our decisions and adapting them to future needs.

A think-tank, such as this one of the Global Forum, perfectly complements the national and international agendas in the field of digital technology and its use. In these times of economic turmoil, it must more than ever help to outline a vision and help to shape the future: By being a pioneer and showing the way towards future digital policy; by indicating priorities for the future, the challenges, the opportunities that the Information Society certainly offers; by creating awareness of the differences in speed at which communities are evolving in the field of the Information Society and proposing solutions for enabling the stragglers to catch up with the rest of the platoon.

Our diversity – public and private, our geographical diversity, our technical, economic and political backgrounds – our independence, all enable us to give free rein to our thinking and to see solutions and possibilities where others get bogged down because of their lack of freedom and their tunnel vision. Let us make the best possible use here and now of these outstanding advantages!

CONSTANTIJN VAN ORANJE, Member of Cabinet of Ms. Neelie Kroes, Vice-President for Digital Agenda, European Commission, welcomed the participants and opened the Global Forum by presenting with great competence and commitment

The Digital Agenda for Europe

The reason launching a Digital Agenda for Europe is that ICT is no longer only about technology. ICT produces 50% of productivity growth in Europe. The Internet market in Europe is by now growing at a pace of 12% and is already bigger than the economy of Belgium. Moreover, ICT represents a majority of venture capital investment and is a major driver for innovation. But it is much more than that: The Internet as a social media has empowered citizens, patients, consumers, and activists. Open data used in public sector information enables redesign of public services, representing a market in Europe of around 50 to 140 billion EUR per anno -- if released effectively.

ICT will be a major component for ensuring sustainability of healthcare systems. It also represents a response to the demographic challenge that this continent is facing. Moreover, energy efficiency will not be achieved in a way it would without ICT.

ICT is empowering, it is transformative and it is challenging. It is challenging because it raises new challenges like global governance; new business models; disruption of existing markets and organizations. New forms of exclusion are emerging based on a lack of skills or the lack of access. Fragmentation of online markets is a problem that we are facing, and Internet security and cyber-crime are new issues to deal with.

The Digital Agenda addresses these challenges to unlock growth potential of ICT markets and to enable the powers of ICT to drive innovation, competitiveness and efficiency and to support the effective deployment of ICT to meet the societal challenges, without which the EU will not be in a position to grow its way out of the crisis we are currently facing.

The EU has a lot of potential: There are great scientists, very interesting technologies, many very powerful start-ups, strong telecommunication companies, and world class standards – just to name a few. But Europe is also facing a lack in investment in broadband, low levels of venture capital, difficulties in commercialising these technologies and scaling up small enterprises. There are no major players in cloud computing, nor in operating platforms and still 27% of the EU population has never been online and are lacking the necessary skills to be full digital citizens.

The Digital Agenda is focusing on seven major areas of concern -- major bottlenecks:

1) One is creating the environment for broadband investment through spectrum policy but also by helping financing through projects bonds, which will be piloted in 2013. The Commission aims to leverage project financing for the roll-out of high speed broadband. From 2014 the Commission envisages more structural and sustained funding through the Connecting Europe Facility.

2) A major priority is removing the barriers to the digital single market. Of course there is a digital single market, but it is mostly illegal (piracy). Ironically, while the barriers are removed in the real world, they are reappearing or appearing in different forms in the digital world. Therefore we need a coherent cloud policy for the 27 Member States, privacy policy that is harmonized across the EU, a fully interoperable identity management infrastructure, rules for

public procurement, copyright -- all these are areas the EU needs to deal with to create a single digital market.

3) The third priority is making sure that people have access to Internet and be able to use the Internet in a secure way. The trust that people have in using the Internet, using technologies and transacting online is absolutely key.

4) Moreover, the Commission wants to improve interoperability and standards to allow systems and solutions to communicate with each other and creating platforms for open innovation.

5) To anticipate the future – and this is something the European Commission has always been very strong in the DG that Ms Kroes is responsible for – is to invest in research. Over a billion EUR is invested in research each year and this continues to increase, supporting those entities in Europe that do the top in class and excellence in research and ICT.

6) Furthermore there is a need to ensure that people have the access and the skills to be able to engage in the digital single market and the digital society.

7) And finally, there is a need for the right frameworks for ICT to be deployed effectively to deal with societal challenges like climate change, congestion and mobility and other issues.

All of this takes place in a global context. Therefore there is a need for efficient international cooperation, for trade, for collaboration in standards, in R&D, but also in governance and dealing with security challenges. None of which stop at the borders of Europe.

We experience a high pace of change and need to keep up, knowing that the traditional instruments of the Commission, such as regulation, are often too slow and too rigid to deal with the challenges ahead. To be effective the Commission focuses on setting the right framework conditions for markets, the civil society and governments to make the transition towards the digital area.

However, all this cannot be done alone but has to be done together with all stakeholders, both public and private. Everybody has to take responsibility to move forward in the digital area. It is not an option – Europe has to succeed in its ambitions to be able to overcome the current crisis and to grow. Society and policy makers have to be aware that ICT is the area of the future and this is where we need to invest.

Ms Kroes, who is sending its greetings to the participants of the Global Forum, is extremely dedicated to this cause.

SÉBASTIEN LÉVY, Vice President Global Forum / Shaping the Future & Partner Items International, Administrator Silicon Sentier, France, warmly welcomed the participants and expressed his delight that, after six years, Global Forum is back in this magnificent Palais d'Egmont.

He stressed that he very much looks forward for what promises to be a really exciting and challenging Forum and to the discussions during the next two days to define a Vision for the Digital Future. "Mobilizing organizations and people for sustainable growth" is of crucial

importance – especially in times of economic uncertainty, instability and government austerity measures.

Before giving the floor to the first keynote speaker, he left the attendees with a quote from the US anthropologist Margaret Mead who once said “Never underestimate the power of a small group of committed people to change the world. In fact, it is the only thing that ever has."

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A Vision for the Digital Future

The session's **chair** and **moderator**, **DAVID GROSS, Attorney at Law, Wiley Rein LLP, USA; Former U.S. Ambassador Coordinator for International Communications & Information Policy at the US Department of State,** welcomed the participants and panellists and opened the session by reminding the focus of this panel, which is all about future. The session started with the government speakers first, followed by representatives of the private sector.

ROBERT MCDOWELL, Commissioner of the Federal Communications Commission - FCC, USA, delivered an excellent and very distinguished keynote presentation on

The Promise of Unlicensed Cognitive Networks

Good morning! Thank you, Ambassador Gross, for your kind introduction. I also thank Sylviane Toporkoff for inviting me to participate today. It is a pleasure to be here among this distinguished group of leaders.

The Internet has had a powerful effect on the world economy and has helped improve the human condition across the globe. We have witnessed the fruits of increased innovation, entrepreneurship and competition that this technology has helped deliver. Combining the power of the Internet with the freedom that comes from wireless mobility has created new economic and political opportunities that were unimaginable just five years ago when I was first appointed to the FCC. The power of competition, private sector leadership and regulatory liberalization has wrought a wonderful explosion of entrepreneurial brilliance, economic growth and political change.

For instance, shortly after the WTO accord of 1997, the world's telecom market stood at U.S. $602 billion. The Telecommunications Industry Association projects $4.3 trillion in global telecom spending this year. TIA expects that figure to climb to $5.31 trillion in 2014. At the same time, worldwide Internet usage grew from a mere 400 million users in 2000 to over 2.1 billion today. Similarly, world-wide mobile phone subscriptions rose from 700 million in 2000 to over 5.7 billion as of this summer.

Indeed, we cannot ignore the unfolding revolution in how we connect to the Internet for information, products and services. In the United States, a large percentage of younger and minority citizens increasingly access the Internet through mobile devices.

According to the Pew Research Center's July 2011 report on smartphone use in the U.S., smartphone owners under the age of 30, that are non-white, low-income and less-educated state that "they mostly go online using their phones." A full 87 percent "sometimes" use their mobile devices to browse the web. And, 38 percent use their handsets as their primary

means to access the Internet. In addition, the Institute for Communication Technology Management at University of Southern California reports that more than 60 percent of Latino, black and young smartphone users “often” or “always” use smartphones for their Internet connections.

As this data demonstrate, clearly, the future of the Internet is mobile. And the future is now. Consumers increasingly demand mobile devices that deliver myriad applications for browsing, information and entertainment. With this in mind, during my time at the Federal Communications Commission, I have consistently supported efforts to identify and put into the marketplace more spectrum. At the same time, I have worked to remove regulatory barriers, preserve flexibility for entrepreneurs, and promote additional innovation and investment in communications services. I have also called for greater adoption of techniques to maximize spectral efficiency and employ dynamic uses of spectrum.

U.S. policymakers are finding the task of identifying 500 megahertz of quality spectrum to reallocate challenging, at best. Even if we could meet that challenge today, almost ten years would pass by before the FCC could write proposed auction rules and band plans, analyze public comment, adopt rules, hold an auction, collect the proceeds, clear the bands, and watch carriers build out and turn on the networks for their customers. In the meantime, therefore, helping innovators create and deploy new technologies to enhance more efficient use of the airwaves should be a top priority for all regulators. Consumers reap the greatest benefits when public policy aims to bring more spectrum to market while also promoting spectral efficiency. We should work together to encourage wireless providers to deploy enhanced antenna systems more aggressively and provide targeted consumer education on the benefits of using femto cells, both of which are ready off-the-shelf.

In light of consumer demand on today’s wireless service providers, learning more about unlicensed cognitive networks, also known as “smart” or “intelligent” networks, is important and timely. A cognitive network is one that uses computer-enhanced facilities and devices, the combination of which are referred to as a “network.” Cognitive networks will enhance efficiency, first, by incorporating technology that may query geo-location databases, sense the “noise” environment, or other means, and; second, by relying on unlicensed shared spectrum.

Last year, the FCC adopted an order finalizing rules to make the unused spectrum between television channels available for unlicensed broadband wireless devices by using a geo-location database. We call this spectrum, located within the 700 MHz Band, the “TV white spaces.” Although highly technical in nature, the effect will be simple for consumers. In fact, they may not notice anything different, except that they will experience – and no doubt appreciate – higher speeds and expanded coverage when connecting to the Internet. This new and robust connectivity will spark the creation of as-yet unimagined applications for both personal and business uses.

The FCC’s rules provide that mobile devices operating in the unlicensed TV white spaces would query a database over the air to learn which channels in the area are currently available for use, along with any other relevant operating parameters. Thus, these devices are a component of cognitive radio networking. Initiated in 2002, the effort to make use of the white spaces spectrum is and has always been bipartisan. Moreover, the FCC undertook this proceeding with an eye toward replicating the successful history of innovation that resulted from unlicensed operations in the 2.4 GHz band. Relinquished by the federal government and commonly known as a “junk band,” the FCC allocated the 2.4 GHz band for unlicensed use in 1995. Among other ubiquitous devices such as digital cordless telephones, utility

metering devices, fire and security alarm systems, wireless bar code readers, wireless local area networks and baby monitors, entrepreneurs deployed “wireless fidelity” or “Wi-Fi” in the 2.4 GHz band. Perhaps you’ve heard of it.

Today, Wi-Fi adds many billions of dollars to the U.S. economy and is an essential component of the mobile broadband marketplace. For instance, a 2009 Microsoft report measured a small subsection of unlicensed spectrum use, namely Wi-Fi in homes, health records technologies, and radio frequency identification (RFID) tags in the clothing retail sector. Microsoft found that just these three unlicensed wireless applications will generate $16 to $37 billion per year in economic value for the U.S. economy over the next 15 years.

Some refer to the TV white spaces as a “Super Wi-Fi” because the band is located much lower in the spectrum than its older sibling, Wi-Fi (700 MHz versus 2.4 GHz). Due to their spectral properties, signals from the TV white spaces will easily travel through walls and will require fewer base stations, and therefore less money, to be carried.

Let me emphasize that this form of cognitive radio is “unlicensed.” The U.S. has long-standing experience with unlicensed radio –going back to the 1930s. I understand that for many global regulators, the term “unlicensed” may raise concerns. Let me assure you, however, “unlicensed” does not mean completely “unregulated.” Rather, unlicensed means that the user of the spectrum does not need an individual FCC-issued license in order to use the spectrum or operate the device. And, all manufacturers of devices for this band must comply with technical parameters established by the FCC and obtain the requisite certifications.

Permitting use of the TV white spaces on an unlicensed basis maximizes the efficiency of these smaller scraps of spectrum, which would be difficult, if not impossible to auction. Why? Because the rights to these small patches are not clearly defined, exclusive or easily transferable. Given these parameters, potential bidders would lack the incentive to spend the money necessary to invest in a license and construct a network, comply with FCC regulations, or offer commercial service.

Unlicensed use provides today’s entrepreneurs with a means to develop new and exciting products without the high barrier to entry posed by licensed spectrum use. In addition, unlicensed Wi-Fi has become an important tool for licensed carriers. Cisco recently reported that IP traffic carried over Wi-Fi alone is expected to surpass the amount of traffic carried over wired networks by 2015. A 2011 Juniper Research report states that, by 2015, 63 percent of traffic generated by mobile devices will transfer onto the fixed network via unlicensed Wi-Fi and femtocell technologies. Furthermore, unlicensed networks will pick up 90 percent of this offloaded data at some point in transit.

You may know that the U.S. Congress is currently debating the merits of further consolidating the television channels in order to identify additional spectrum for auction. As part of this discussion, some have suggested that Congress or the FCC should set aside a large contiguous swath of spectrum within the 700 MHz Band for exclusive unlicensed use. I respectfully disagree with this approach. As a preliminary matter, such action would be premature. As I mentioned earlier, unlicensed spectrum, no matter where it exists, plays a critical role in the context of mobile broadband services. Nonetheless, the timeline for identifying, auctioning and ultimately clearing additional licensed spectrum in the 700 MHz Band is murky at best, let alone that for setting aside and reserving a given amount of channels for unlicensed use. At this early stage, it is not apparent that we should stop the

progress well underway in the white spaces arena to create a solution for a problem -- an alleged shortage of unlicensed spectrum in the 700 MHz Band -- that may never exist.

More importantly, such action would go directly against the FCC's goal in the TV white spaces effort -- to maximize efficiency and gain consumer benefits from an undefined and under-used resource. Put another way, a contiguous swath of spectrum would be clearly defined, exclusive and easily transferable – everything the white spaces are not. Given today's unprecedented budget deficits, I question whether the U.S. can afford not to auction any and all spectrum recovered in this band.

Finally, such designation may jeopardize U.S. efforts to harmonize this band internationally and to reap the associated beneficial economies of scale. I hope that we would all agree on the desirability of creating a more efficient and less costly path for network and device manufacturers.

Next, let me update you on U.S. developments in the area of white spaces technology. We've already had a number of trials demonstrating the power of this "Super Wi-Fi," from "smart grid" and "smart city" networks, to rural healthcare and rural education. In late 2009, the U.S.'s first white space-based wireless broadband network was established in Claudville, Virginia, in the Blue Ridge Mountains of my home state. There, a private company established a central white space link that transmits a signal to Wi-Fi routers at a local school and cafe, bringing broadband to a previously unserved population.

In 2010, in the Midwest, a group of entrepreneurs deployed the first white space broadband network for healthcare providers in Logan, Ohio. That network enables and supports healthcare providers' ability to use affordable broadband, while also providing data transmission for telemedicine applications.

Also last year, in the Sierra Nevada mountain range (in the western portion of the U.S.), private companies deployed the first smart grid using TV white space. There, on behalf of the Plumas-Sierra electric utility, entrepreneurs built a network that automated the utility's substations allowing it to initiate smart meter reading. And, along the Atlantic Coast, Wilmington, North Carolina established a "smart city" white space network to support municipal applications including wetlands water quality monitoring, vehicular traffic monitoring and lighting management. The city also established a "middle mile" wireless network that connects its fiber network with Wi-Fi public access points in city parks and housing projects. The U.S. is not alone in examining ways to achieve greater spectral efficiency through cognitive radio networking. In fact, in September, Ofcom announced plans to introduce white spaces technology in the U.K. Also, I understand that various members and study groups connected with the World Radiocommunication Conference are examining ways to facilitate cognitive radio systems. I look forward to learning more about these developments.

Conclusion

In this era of economic turmoil, use of white space technology will help create jobs. This year, McKinsey reported that, while the Internet has disrupted some businesses, for every job lost due to its deployment, an average 2.6 new jobs have been created. For instance, today, over 2,500 wireless Internet service providers use Wi-Fi to deliver service to over two million users in the U.S., many in rural communities.

Furthermore, unlicensed spectrum serves as an incubator for wireless innovation. Over 20,000 wireless devices have been certified for use in the old 2.4 GHz "junk band" – more than any other band. More than 760 million Wi-Fi products were shipped last year alone – including SmartPhones, laptops, media players and tablets. For 2014, experts project shipment of more than 1.5 billion such devices.

As a correlation, TV white spaces, with its use of a geo-location database, serves as a test bed for innovation in cognitive radio. To the extent the world will need to explore cognitive radio to meet future spectrum demands, Super Wi-Fi must be given room to blossom. Opening this band to unlicensed use is an important component of the long-term spectrum planning currently underway in the U.S., and around the world.

Finally, the competitive opportunities presented by developing the unlicensed TV white spaces will broaden the ability for new entities to enter the wireless marketplace, including small businesses, rural telephone companies, and businesses owned by members of minority groups and women.

I've learned that it's foolish to predict the effects and consequences of regulatory decisions. If past is prologue, however, this powerful new form of advanced cognitive wireless communications will have even greater economic effect than Wi-Fi. For these reasons, I urge that we work together to take action to further the development of cognitive radio technologies. I propose that, together, we take advantage of the emerging reality brought about by technological progress, business innovation and the dynamic mobile marketplace. Unlicensed cognitive networks are poised to play a prominent role in our future.

THOMAS ROSCH, Commissioner of the Federal Trade Commission - FTC, USA, outlined some notable reflections on the FTC's point of view concerning:

Neutral on Internet Neutrality:
Should There be a Role for the Federal Trade Commission?

The presentation is about the role of antitrust and competition law in ensuring Internet neutrality. More specifically, about whether there should be a role for the U.S. Federal Trade Commission, as an antitrust enforcement and consumer protection agency, to play in this arena.

In June 2007, the FTC issued a report entitled Broadband Connectivity Competition Policy, prepared by the Internet Access Task Force under the leadership of Maureen Ohlhausen, then the Director of the FTC's Office of Policy Planning. As this Broadband Report noted, in 2002 the Federal Communication Commission classified broadband Internet service provided by cable companies as an "information service," and not as a "telecommunications service" that would be subject to mandatory, common-carrier regulation under Title II of the Communications Act of 1934. This classification was subsequently affirmed in 2005 by the U.S. Supreme Court in National Cable & Telecommunications Association v. Brand X Internet Services.

Because Brand X upheld the FCC's classification of broadband Internet service as an "information service"—as opposed to a "telecommunications service" subject to the FCC's common-carrier regulation, some people, including the FTC staff that authored the Broadband Report, have interpreted the decision to mean that the FTC may therefore properly exercise enforcement jurisdiction over broadband Internet service. Under their

reasoning, although the FTC's jurisdiction to enforce Section 5 of the Federal Trade Commission Act does not extend --by historical design – to "common carriers" that are subject to FCC regulation under the Communications Act, such as, for example, providers of "telecommunications services," this exemption would not apply to providers of broadband Internet service to the extent that the service is classified instead as an "information service." Assuming that this is a proper interpretation of Brand X—and it is debatable whether it is—it would imply that the FTC has potentially more than a limited role to play in ensuring Internet neutrality.

Despite the implications flowing from the above-described reading of Brand X, however, the FTC did not immediately jump into the fray. Rather, the 2007 Broadband Report preached caution when evaluating proposals from businesses, interest groups, and commentators that we regulate broadband Internet service because "we do not know what the net effects of potential conduct by broadband providers will be on all consumers, including, among other things, the prices that consumers may pay for Internet access, the quality of Internet access and other services that will be offered, and the choices of content and applications that may be available to consumers in the marketplace." The Report further warned that any regulation, applied prospectively in a relatively young and dynamic industry to business conduct that has not been shown to have resulted in market failure or consumer harm, could have potentially adverse and unintended effects. And this is debatable as well.

With respect to the brewing legal and political debate over Internet neutrality, the FTC has thus chosen to hunker down in the trenches, but with our antitrust and consumer protection enforcement guns locked and loaded, ready to stave off any assault on consumer welfare. Meanwhile, the FCC, has marched directly into the line of fire with its rulemaking process, aimed at articulating and enforcing certain principles deemed essential to a "free and open Internet," subject only to the countervailing principle of "reasonable network management."

Specifically, in October 2009, under the leadership of newly appointed Chairman Julius Genachowski, the FCC issued a Notice of Proposed Rulemaking, through which it sought public comment on a proposed set of rules on Internet neutrality. Commissioners Robert McDowell and Meredith Baker each dissented in part, however. Both of them were not convinced that the factual record before the FCC showed a demonstrable problem with Internet access that required fixing but they nonetheless agreed that the proper way for the agency to proceed—assuming there was a problem—was through the rulemaking process.

In December 2010, the FCC concluded its rulemaking process with the issuance of a Report and Order that adopted a set of final rules on Internet neutrality -- the "Open Internet Order." The rules were published in the Federal Register in September 2011, and they are scheduled to take effect later this month, on November 20, 2011. Commissioners McDowell and Baker again dissented, this time in full. Both dissents expressed concern not only with the absence of a demonstrable problem in the broadband marketplace that needed to be fixed through the adoption of the Internet neutrality rules, but also with the FCC's resolve to bring its rulemaking process to a conclusion, despite being told by the D.C. Circuit, only eight months earlier in Comcast Corp. v. FCC, that the agency did not have the necessary statutory jurisdiction from Congress to regulate Internet access service in this manner. Both dissents raised other concerns as well, but suffice it to say, the FCC's Open Internet Order has triggered a firefight, not only with litigants already challenging its validity in court, but with Congress as well.

Fortunately, the FTC is not in the middle of this legal and political maelstrom. For one thing, one of the core Internet neutrality principles articulated in the FCC's Open Internet Order is transparency—that "fixed and mobile broadband providers must disclose the network management practices, performance characteristics, and terms and conditions of their broadband services." As the current Chairman, Jon Leibowitz, has repeatedly observed, transparency makes Internet neutrality a consumer protection issue, which implicates one of the main areas of the FTC's enforcement agenda. The harder question is whether Internet neutrality is, or should be, an antitrust issue. Chairman Leibowitz is a longtime friend of FCC Chairman Genachowski. Indeed, they play basketball together on the weekends and talk with each other from time to time—perhaps about whether the two agencies could have a shared role in regulating broadband Internet access from the standpoint of both consumer protection and competition.

There is another development that may change how the FTC looks at Internet neutrality. Maureen Ohlhausen, who oversaw the preparation of the Commission's 2007 Broadband Report, has been nominated by President Obama to the Commission vacancy created by the departure of Commissioner Bill Kovacic, whose term ended in September 2011. Assuming that her nomination will be confirmed by the U.S. Senate, it will be interesting to see what views on Internet neutrality she will bring to the Commission table—four years after the issuance of the Broadband Report.

There are three reasons why the FTC should stay out of the business of regulating Internet neutrality: First, the jurisdiction over broadband Internet service remains debatable, given the common-carrier exception built into Section 5 of the FTC Act. As mentioned, some people have read the Supreme Court's 2005 Brand X decision, and indeed, the D.C. Circuit's 2010 Comcast decision, as suggesting that the FTC can broadly regulate Internet neutrality. But Brand X and Comcast considered only the FCC's jurisdiction—that is, to what extent can the FCC regulate network management practices associated with broadband Internet service, given its classification of the service as an "information service" and not as a "telecommunications service" under Title II. The fact that the FCC has chosen to deregulate broadband Internet service in its 2002 Cable ModemOrder and 2005 Wireline Broadband Order does not necessarily mean that the service is therefore subject to regulation by another agency such as the FTC. Importantly, like the FCC, we get our jurisdiction directly from Congress, or from courts interpreting the scope of our enabling legislation, but not from another agency.

Our ability to regulate broadband Internet service is arguably constrained by Section 5(a)(2) of the FTC Act, which expressly exempts from our jurisdiction "common carriers subject to the Acts to regulate commerce." Section 4 of the FTC Act defines as one of "the Acts to regulate commerce" the Communications Act of 1934. This exemption was a product of institutional design; when Congress created the FTC in 1914, it did not intend for the new agency to enforce Section 5 against common carriers because these entities were already subject to regulation by another agency, namely, the Interstate Commerce Commission ("ICC"), under the Interstate Commerce Act of 1887. Thus, in a congressional scheme intended to avoid interagency conflict, the ICC retained jurisdiction over telephone common carriers (as well as railroads) until 1934, when Congress enacted the Communications Act that created the FCC and transferred the ICC's jurisdiction over telephony to this new agency. Thus, in its near-century of existence, the FTC has arguably never been given plenary jurisdiction over telephone common carriers by Congress.

Furthermore, Section 5 case law suggests two reasons why we should not rely on the FCC's regulatory classification of broadband Internet service to inform our own jurisdiction. First, the FCC's classification was indisputably tied to the regulatory scheme that that agency is charged with administering under the Communications Act. In other words, the classification considered the question whether an entity that provides broadband Internet service would be considered a "telecommunications carrier" under Title II of the Communications Act. It did not necessarily answer, however, the question whether such an entity is a "common carrier" under Section 5 of the FTC Act—a question that one appellate court has told us must be answered by looking to the common law at the time Congress enacted the FTC Act, and not to the circular definition of "common carrier" in the subsequently enacted Communications Act.

Second, the FCC's regulatory classification was of a particular business activity—namely, broadband Internet service—and not of an entity that provides broadband Internet service. In other words, the FCC did not declare, in its 2002 Cable Modem Order and 2005 Wireline Broadband Order, that all entities providing broadband Internet service are henceforth not classified as "common carriers." Rather, the FCC declared only that broadband Internet service, via cable modem or digital subscriber line, is classified as an "information service" and not as a "telecommunications service." This distinction is important because two appellate courts have told that the applicability of the common-carrier exemption under Section 5(a)(2) of the FTC Act is based on an entity's status as a "common carrier," and not its engagement in activities that may be subject to regulation under statutes governing "common carriers." Accordingly, the FCC's classification of broadband Internet service does not necessarily answer the question of whether an entity providing this service has the status of a "common carrier" under the FTC Act.

There is another reason why the FTC should stay out of the business of regulating Internet neutrality. It is not altogether clear to me that antitrust principles can be applied to advance the goals of Internet neutrality. To be sure, the Broadband Report suggested a number of antitrust theories under the broad headings of exclusive dealing, vertical integration, and unilateral conduct that its authors thought might be applied to promote Internet neutrality. But successful antitrust enforcement requires more than theories; both the facts and the law must be arguably on our side.

A couple of examples: The first is Madison River Communications, LLC, a 2005 FCC consent decree in which the respondent, Madison River Communications, agreed not to "block ports used for VoIP applications or otherwise prevent customers from using VoIP applications." This decree resolved a complaint that Madison River had allegedly denied Vonage, a competitor in telephone service, access to its DSL network for Internet access. If this allegation had been dressed up as an antitrust claim, it likely would have been to charge Madison River with unilaterally refusing to deal with Vonage in the adjacent market for DSL Internet service, in order to gain some undue advantage in the telephone service market in which they both compete. As said before, as an antitrust litigator, I would not relish taking the allegations of Madison Riverto court in the form of a Sherman Act Section 2 claim because I am not confident that such a claim would survive a motion to dismiss in some jurisdictions.

A second example concerns the direction in which our law under Section 2 of the Sherman Act seems to be headed. Suffice it to say, claims of monopolization and attempted monopolization based on unilateral refusals to deal or the essential facilities doctrine appear unlikely to succeed after the U.S. Supreme Court's decisions in Verizon Communications Inc. v. Trinko and Pacific Bell Telephone Company, Inc. v. linkLINE Communications, Inc. In Trinko, Justice Scalia questioned the role of antitrust in enforcing sharing obligations by

putative monopolists that have invested in "an infrastructure that renders them uniquely suited to serve their customers." He added that in an industry like telecommunications that is already subject to regulation, the benefits of antitrust enforcement are likely to be small and outweighed by the costs. In linkLINE, Chief Justice Roberts repeated the same institutional concerns regarding antitrust enforcement of a duty to deal or to share, as furnishing an additional ground for rejecting the claim that AT&T had engaged in an anticompetitive "price squeeze" by charging competing providers of DSL Internet service a high wholesale price for access to its DSL network, and customers a low retail price for its own DSL Internet service.

In summary, the law under Section 2 of the Sherman Act appears to be moving in a direction that does not favour antitrust enforcement of Internet its investment and protecting its innovation in the "pipes." This consideration raises the question whether the owner may lawfully engage, for example, in price discrimination based on traffic load or usage frequency for the information flowing through its pipes. Trinko and linkLINE tell us that an antitrust court may not be well suited to provide a judgment on this type of question and to provide continuing supervision over network management practices.

A third reason why the FTC should stay out of the business of regulating Internet neutrality is that this arena is arguably too political and too regulatory an environment for them to act effectively, given its institutional design as an independent, expert agency. One has only to look at the current battle that the FCC has walked into with the issuance of its Open Internet Order to appreciate how regulation-intensive and politically charged the subject of Internet neutrality is.

Congress created the FTC to be an independent, non-partisan agency, free from political influence. Our primary agenda is the enforcement of Section 5 of the FTC Act against unfair methods of competition, and unfair and deceptive acts and practices, which we do as an "expert body" drawing on experience. The judgment regarding violations of Section 5 is to be given great weight by the courts, particularly when we have studied and assessed the economic effects of the challenged methods, acts or practices on competition and consumers.

Given its institutional design, the FTC may not be well suited to deal with the subject of Internet neutrality. As FCC Commissioners McDowell and Baker suggested in their dissents to the issuance of the Open Internet Order, the FCC's rulemaking appears to have been undertaken to fulfil a particular political agenda. If we are to act independently as Congress intended, then we should not succumb to a similar temptation "to make policy choices for purely political reasons," especially choices that either lack a reasoned basis in law and fact, or go beyond our core competencies as an antitrust and consumer protection agency.

Furthermore, as both Commissioners McDowell and Baker asserted in their dissents, the FCC's rulemaking ostensibly ignores the admonition in our 2007 Broadband Report against enacting regulation for the sole purpose of preventing anticipated future harm. This kind of regulation may potentially do more harm than good. If the FTC were to join the FCC in regulating Internet neutrality, then we would also risk damaging our own institutional credibility with Congress and the courts because we would be attempting to impose our enforcement agenda under Section 5 in a relatively young industry in which we have not yet fully assessed the impact of various methods of competition, acts or practices on consumer welfare.

One final observation is that Vice-President Neelie Kroes of the European Commission, although she has been an ardent advocate of Internet neutrality as part of the Digital Agenda, has adopted a wait-and-see attitude towards any legislation or regulation in this arena: “We must act on the basis of facts, not passion; acting quickly and without reflection can be counterproductive.” I agree.

ANTTI ILMARI PELTOMÄKI, Deputy Director General, DG INFSO, European Commission, provided a great keynote presentation and insight in

The EU’s Vision for the Digital Future

The EU’s vision for the digital future is a vision that cannot be seen as an isolated European issue. This is a real global challenge and opportunity.

The Digital Agenda for Europe is there to support citizens, to boost confidence in ICT and to lift competitiveness. But this is not just for Europe. We have seen the role the Internet can play in countries like Tunisia and Egypt. And there are billions more people still to come online: they will mainly be young people from emerging economies, and they will have a distinct outlook and needs.

The European Commission's role is to act as an enabler, a catalyst and an honest broker. We are in a time of crisis and budget cuts. But this should give us an added impetus. At a time of global change, it is not an option to stay put. If we use ICT effectively the change can be less painful, and more effective. If we don't invest in the future, we will remain stuck in the past.

The digital economy is a major source of growth and jobs. A true digital single market could deliver 4% extra GDP growth over the next ten years. Recent evidence presented to the eG8 Summit indicates that the internet contributed 20% to GDP growth from 2005-9. To take an example, over the last 15 years in France alone over 700,000 jobs have been created in the ICT sector; that is more than work in agriculture.

The European Council recognised this potential on 23 October 2011. It invited the Commission to rapidly present a roadmap on the completion of the Digital Single Market by 2015, which it had called for in June of this year. It asked us to give priority to the following issues: a) facilitation of e-commerce and the cross-border use of online services, b) achieving the broadband coverage objectives set out in the Digital Agenda, c) facilitating secure electronic identification and authentication and d) modernising Europe's copyright regime.

Lastly, it also called for a rapid agreement on the Radio Spectrum Policy Programme. There is now an agreement in principle between the co-legislators. Globally, 8 trillion USD in goods and services are traded over the internet each year.

e-commerce is a source of growth which is necessary to boost and it is urgent to close the gap between the 40% of EU citizens who buy online in their own country and the 9% who buy online across borders. Goods offered in other countries are often at least 10% less expensive than domestic goods. Facilitating cross-border e-commerce will bring benefits to consumers by lowering prices and enhancing competition.

There are many areas where a stronger effort could influence growth: Firstly, there is broadband: adding 10 percentage points to your broadband penetration can add between 1 to 1.5% to your national GDP. But this can only happen if countries make investments in broadband the centrepiece of their growth strategy.

Secondly, we also need to focus our efforts on financing ICT start-ups by creating a good environment to start new businesses. If you don't make advanced use of ICT, you cannot start a new business today, in any industry. In fact, firms with high ICT intensity grow 25% faster than other firms. And it seems likely that the fastest-growing companies of the next few years will be found in the ICT sector. Indeed, with 1.5 trillion EUR spent annually by consumers worldwide on digital information and entertainment, and growing strongly, this is where the opportunities lie.

Thirdly, we need to have a copyright regime for the digital age. Consumers expect, rightly, that they can access content online at least as effectively as in the offline world. Europe lacks a unified market in the online content sector, which hinders innovation and growth. The number of legal music downloads are four times higher in the US than in Europe. Europe could gain up to 0.6% in annual GDP growth with a copyright regime fit for the digital age.

Fourthly, we need to design a cloud-friendly Europe. An EU cloud would have a silver lining of 400,000 new jobs a year and at least 763 billion EUR in cumulative economic benefits up to 2015.

Fifthly, research and innovation is the lifeblood of economic growth. The ICT sector, though just one twentieth of EU GDP, drives one fifth of productivity growth, and represents one quarter of EU research and development. Of the remaining three quarters, much comes from industries which depend on ICT - like cars, health and consumer appliances. Investing in research is investing in the future.

It is our proposal to increase the amount allocated to research and innovation bringing it to 80 EUR billion from 2014 till 2020. That will bring the share of research and innovation in the EU budget up to 8.5% in 2020.

We also want to allocate a significant part of the EU budget to infrastructure, as President Barroso mentioned in his State of the Union address, in order to create a facility to connect Europe – in energy, in transport, in digital. For digital infrastructures, we have e.g. 2 billion earmarked. We have also proposed another 2 billion EUR for investing in European essential and networked public services online -- servers, generic and interoperable software etc – concerning, for example, eGovernment, eID, eHealth or Europeana, the digitisation of cultural goods.

We have a chance, perhaps the chance, to transform the economy so we can maintain our standard of living. This depends not so much on what the Commission proposes but how we act together! The next months will hopefully prove to be full of activity in this context.

HARRY VAN DORENMALEN, Chairman IBM Europe, The Netherlands, [www.ibm.com], delivered a most captivating intervention on the company's "smarter planet" strategy:

The presentation starts with some comments about the ICT playing field, followed by examples that demonstrate that the digital environment is not a vision anymore and closes with three points that can be called "game changers" and that will make a difference in the world we live today.

The uncertainty that every time seems to surprise us is striking. In Iceland there was an eruption of a volcano at the end of last year and for about one week the complete air traffic was down. We were surprised, we did not know what to do and took a lot of time to get it fixed. Apparently, it was unpredictable. Flood water is another actual topic: in Bangkok but also in Southern Europe.

With all our intelligence and leadership and creativity we do not see these things coming. And if we see these things coming: why don't we do something in time? The interesting thing we see in this world: many many changes, but also a lot of unpredictability.

IMB's vision for the world is called "smarter planet". The company fundamentally believes that this world has become instrumented -- with over 4 billion devices it is instrumented. Secondly, IBM believes the world has become interconnected. In a minute, even a second we now if something happened in Chile or in Australia.

The enjoyable part is that we start using all theses things intelligently. However, in the world today, with deficits all over the place, there is no money left for new investments. The only way to create money for investment is to do things much more smarter.

IBM is celebrating its centennial in June this year. The company is very pound of never having compromised a technology research and development in all these years. There is the fundamental believe that technology R&D is about the future and is about economic growth.

Today, we have the less issues to fix. The issues are there, they are more complicated and really need full spectrum to fix it. For instance, in the context of cyber security, there are four or five fundamental issues that we need to address, but that is it. So, people should not always be too pessimistic about these things. This trend of Internet, this trend of globalisation is unstoppable. The only way forward is to define the issues, to work together and fix them step by step.

In the city of Stockholm, already seven or eight years ago, the major decided to change the direction and to address the mobility situation in the city. He mobilized 31 companies together to fix this mobility issue. Seven years later, they already enjoyed five years of reduced congestion and improved environment. If people take leadership, use the technology and bring the right parties together, it can be done.

The same happened in the island nation of Malta, where companies built an energy grid that mobilized all the energy of the island in one. That means that if someone is on vacation, somebody else can use his/her energy. All this is managed in grids -- it is working and it is possible to scale it up for cities like New York for instance.

Another example is the island of Bornholm in Denmark, which is testing wind energy. There will be 5000 electric cars in Europe in 2015. Bornholm is doing pilots to use wind energy to charge batteries of electric cars.

The university of Bari, Italy, took the initiative to implement a cloud environment using technology and in cooperation with the industry, they are reshaping fishery and winery in that part of Italy. That were industries that maybe were not moving anymore but due to the use of technology and digital environment it was renewed.

Another example is McDonalds using call centres in India for drive-thru orders. There are so many examples already all over the world where digital advantages are used, people demonstrate it is going to work and that we can benefit from it.

Health care is another good example: We know it is not a sustainable environment anymore, but homecare and connection to smarter hospitals are there.

The presentation closed with a brief outline of what can be called the three "game changers": One is the significant use of team-play, team-play at a global, European, national, regional and local level -- among knowledge institutions in universities, governments, and industry.

Second, the use of global talent will be a driver, with increasing participation of young technologists. Here, we do not have to forget that our younger generations work in different ways as we do. They work in communities, using the facebooks of this worlds.

The third "game changer" is leadership. It all starts and ends with leadership. To conclude, the question was addressed to the delegates: "Are we ready to change and shift direction?"

GABRIELLE GAUTHEY, Executive Vice President, Global Government & Public Affairs, Alcatel-Lucent, France, [www.alcatel-lucent.com], shared with her usual eloquence and great knowledge some of the reflections and views of what are the challenges and solutions to unleash digital delivery:

The telecom sector has faced deep changes in the past five years and the most disruptive changes are still to come. Today, connecting the next billion Internet users in developed and developing countries is a challenge for everyone, for governments, industry and service providers. It requires to revisit some of our principles. What are the main challenges and solutions?

The first challenge is the explosion of mobile data traffic. This is phenomenon that has not been anticipated well by the industry. It happened with a magnitude and speed that has been never experienced in any innovation of mankind. For many people today, mobile is now a "must". In Kenya, Nairobi, almost 60% of the people have a mobile phone. Today, 20% of the mobile phones are Internet enabled, this will be 70% in 2015. And for many people around the world tablets will be the first choice for connection. 90% of this traffic will be video in 2015. We will have to cope with an increase in traffic by a factor of 30 within the next 5 years! How to collectively cope with this?

The second challenge is the massive investment need. Who is going to pay for this in a time of financial constraints and especially of the increased constraint on the service providers. Massive investments are needed not only in the access but also in the backhaul an din the core. The future is mobile, but you need backhaul for this, so the future of mobile is fixed. This happens quite quickly in certain parts of the world, but unfortunately, Europe is lagging behind.

The third challenge is the very disruptive changes in the value chain. It is the end of models based on voice and distance. We still have not completely taken into account what this really means. The difficulty for services providers to monetize the explosion of data traffic via traditional business models and the decoupling of traffic and revenue –thus the erosion of margins -are rather worrying.

The fourth challenge is the emergence of new innovative players, so called OTT (Over-The-Top) in this sector, such as Google, Facebook, Apple store, DailyMotion etc. They generate traffic growth and innovation with bandwidth-intensive applications, but they disrupt totally the traditional business models.

What is the future? The future requires a shared vision because all the players are connected in the ecosystem, it is the end of a “silo” system. IP networks carry the same identical data (voice, video, data) in a best effort way. But unlike the voice world, there is no standard interconnection, no standard for data QoS and this is a concern. Because it is today based on bilateral agreements and it is a particular concern to get end-to-end QOS delivery throughout Europe.

At the same time, there are increased user expectations for QoE (quality of experience) for free flow, ubiquity, latency, stability, reliability, security, privacy ... Matters that are not only addressed by the OTTs, although they also require more performance and quality of service.

What are the solutions? The first one is the definition of new business models between operators and OTTs – something we are struggling with especially in Europe. The agreements of "wholesale" grading services on QoS, throughput, latency, stability, security. But also the definition of multilateral agreements based on open protocols and standards, which is not the case today. Of course, with certain conditions, which are all about the debate on Net Neutrality, e.g. non harmful discrimination, increased transparency etc.

The second condition is increased revenues from end users for the monetization of new services. Segmentation based on experience levels is expected.

Third, new investment models, both for fixed access and for wireless. Europe runs the risk of fragmentation. It is necessary to revisit the dogma of infrastructure competition in Europe and to turn it into “active infrastructure competition” on top of a common passive platform. We can not afford everywhere the duplication that will inevitably be limited to in dense areas of high capex intensive passive layers that brings nothing. Passive infrastructure is 80% of the cost of the network with a ROI of 15 years, while active infrastructure (network intelligence) corresponds to a ROI of 5 years.

How do we foster these new investment models? Both in the developed and in the developing world, more and more governments are stepping back in to complement private investment and to foster new investment models -- a lot through new models of PPP, both in “old” Asia (Australia, New Zealand, Singapore, India,…) but also massively in the developing world. But they do not act as they used to do 10 or 15 years ago, but try to foster new models especially PPPs. This happens not only in wireline but also in wireless.

The second challenge is wireless and there is a need to revisit the way spectrum is allocated. Spectrum is not an infinite resource. First thing is to get more spectrum if we can, wherever we can under 1GHz, because it is very valuable. It is crucial, but not many more chances in the 15 coming years. Thus, governments are very cautious about how they allocate the current spectrum available.

Second, revisit the way the networks are rolled out, and densify the topography. The increased capacity will come from densification: pico and femto cells with fixed backhaul.

Third, there is the problem to have new sites in urban areas. There is a huge challenge of site sharing, even of radio access sharing and increasingly of spectrum sharing.

Fourth, embrace new, more efficient technologies, such as LTE or cognitive techniques.

What we see in developing countries is a growing awareness of the importance of broadband. It is crucial, even more crucial as these countries lack traditional infrastructures. They have the clear opportunity to leapfrog both in the infrastructure – we see massive rollouts of FTTH in Eastern Europe, Russia and China, but also in LTE. Some of these countries will get LTE before some European countries will get it. How do they do that? Usually thanks to a new long-term vision of the government. It is crucial for them not to miss the allocation of this valuable 700- 800 Mhz spectrum. But it is not just infrastructure, they also implement very innovative social models based on Internet, like m-Education, m-Health or m-Payment;

Let us together have the courage to revisit in our developed world some of our regulatory certainties, especially in Europe, and some of the ways we have allocated the spectrum in the voice world that are not suited for the data world. And let us have the modesty to look around us -- especially at the fast developing countries; they are sometimes more innovative than we are.

KAN'ICHIRO ARITOMI, Vice-Chairman and Member of Board, KDDI, Japan, delivered a very distinguished presentation of features concerning ICT trends in Japan which could be apparent at and after the East Japan Earthquake Disaster.

Firstly, major means of communications have been transferred from fix to mobile. The number of mobile service subscribers in 1995 was below 5 million, however, it rapidly increased to more than 100 million at the end of March in 2011.

Secondly, the means of safety confirmation and information gathering at the disaster shifted from voice and broadcasting communications to data communications -- in other words, the Internet services, such as e-mail, twitter, social networking services, and You-Tube.

Thirdly, in terms of information sharing, such as announcement for companies' activities and provision of information about business services, a lot of companies used their website and some of the companies introduced a tele-working system.

The massive "tsunami" carried away anything and everything. After witnessing the situation, Japan recognized the necessity that information, such as clinical records, residential registration, should be uploaded onto Cloud.

Japan also has to save energy and seek for alternative power supply because of the incident of the nuclear power plant. Today, "Smart Grid" is very hot issue in Japan.

This trend of ICT suggests something about the Vision of a Digital Future. Then, what are the components of the "Digital Future"? Here, 3 components can be mentioned: Telecommunications, broadcasting and data processing.

Telecommunications have been advanced from telephony to Internet, Broadband, mobile and wireless. We can enjoy the transmission speed from kilo, mega, giga to terabit. At the application layer, various new services have been provided, such as SNS, Streaming or M2M.

Concerning “broadcasting”, the digitalization of terrestrial broadcasting has been promoting the flow of digital contents. New services, not over the analogue broadcasting system, are now available, e.g. 3D, Image Recognition, Smart TV.

Data processing has become faster while the cost of data processing are decreasing and data storage capacities increase. High spec devices and sophisticated information retrieval services are now available, such as smartphones, data-mining, clouds, augmented reality.

Today, we are already able to see the convergence of these 3 components. From now on, it will be expected to be much more advanced.

“3M Strategy” is KDDI’ s new strategy. 3M is the first capital letter of multi network, multi device, multi use of contents. The catch-phrase for that is “ Your Future, Your Choice ”

KDDI has various transmission media such as 3G, WiMAX, Wi-Fi, optical fibers and CATV. LTE will be added next year. We call them a multi-network as a whole. The company is able to accommodate rapid increase in traffic to provide a faster, more comfortable connection environment and to reduce total network costs by the seamless combination of these media.

KDDI supports various Internet terminals such as feature-phones, smart-phones, tablets, and STBs. KDDI now provides Android-phones, a Windows-phone and i-Phone. It is very unique in Japan.

KDDI is also providing contents delivery services through the online music service LISMO and other application markets. The company is striving to provide multi-network capability as efficiently, to serve for multi-device as fully-utilized and to explore multi-use to be flourished.

A “common carrier” has no intensions to come down in the world of a “dumb-pipe” business, which just provides only connectivity, transmitting signals over a distance. It would like to develop its activities to a “smart-pipe” business, which provides both connectivity and higher-value services, to its end customers.

Nowadays, various kinds of new services, new products, new business models, through the combinations of various technologies and services, have been developing. Some parties at an upper-layer are providing some higher-value services. Taking advantage of these advanced ICT environment, KDDI would like to provide opportunities that its subscribers can enjoy various contents and services, anytime and anywhere, using their preferred devices, on the best network, in terms of “multi-network, multi-device and multi-use”.

KDDI’s“3M Strategy” is, as it were, the Convergence Ecosystem. Speaking of “Convergence”, KDDI is now trying to create some new values in the movements for a new “ICT Business Convergence”. KDDI is seeking for a new business convergence with other industries, such as ICT + finance, ICT + medical and welfare, ICT + education, ICT + energy and so on.

To conclude, some technical, social and regulatory Issues, which should be discussed for vitalizing the Digital Future: Technical issues are for example, how to deal with the openness via interconnectivity or interoperability and how to cope with increasing huge wireless data traffic. Social issues are for example, how to secure safety and security, how to protect privacy how to protect copyright and how to deal with illegal or harmful information on the network.

Concerning regulatory issues, it will be necessary to reconsider legacy regulatory frameworks and Policies applied for the present time. These issues are expected to be tackled nationally and internationally amongst industries, academics and governments.

FABIO COLASANTI, President of the International Institute of Communications, provided a most inspiring and thought-provoking presentation of the difficulties that we encounter in implementing the vision for a digital future.

The various policy initiatives that all countries have launched have not been very effective, the take up of ICTs is essentially due to technological developments and market forces and we should become better aware of the obstacles that stand in the way of a faster take up of information and communication technologies.

Firstly, beyond the differences in the "vision" that will appear in this session, there is a very large consensus on the benefits that the use of ICT can deliver: a) they deliver very large benefits in terms of growth of productivity and therefore in terms of wealth and job creation. b) But they deliver also huge improvements in our quality of life (better health care, more secure transport, higher energy efficiency, better access to information and education, etc.).

Both these aspects are particularly important in the European context where we see very low growth and an ageing population. So one would expect Europe to be particularly committed to accelerating the take up of ICTs.

Secondly, ICTs are been taken up very fast. Various statistics show how the take up of mobile telephony, computers, broadband is taking place much faster than for any other new products or services in the fast. But there are very large differences in the take up between countries and regions

Thirdly, practically all countries have launched significant ICT policy initiatives: "broadband plans", "Digital agendas", and the like.

ICT are being taken up very fast. When looking at the number of computers in use in the world, at the number of tablets, at the number of smart telephones, at the number of telephones, and at many other similar examples we have to conclude that ICTs is one of the technologies that is being taken up very, very fast. This makes it a bit risky to say that the various plans have not been very effective. Yet this is a judgement that is often shared by the specialist even if no one is able to produce hard evidence for it. It is more of a general feeling.

What probably comes nearer to constituting a proof of the fact that the take up of ICTs has been driven essentially by technology and by the market are the differences in take up between countries. The technology is available to everybody; yet the differences in take up are enormous. The differences in actual take up are bigger than the differences in publicly announced goals and plans.

If government policies were really making a difference we should be seeing e-government, the use of ICTs in the public sector leading the way. This is not the case; just look at our classrooms. However, as I have said before, this is a conclusion for which there is no hard evidence -- but it is a view that is shared by many professionals.

ICT policy initiatives are not able significantly to compensate for the weakness of market forces nor able to overcome the more pronounced resistances that exist in some countries.

What are the difficulties that one encounters in promoting ICTs?

The first one is that it is difficult to engage in a debate about ICTs and their take up. Everybody agrees. The benefits of ICTs are usually discussed among the converts in conferences like this one. No one is against ICTs. No one takes to the street to protest against the plans to deploy broadband or to use more computers.

This means that the level of the debate remains rather shallow. The greatest difficulty people developing ICT strategies are confronted with is "re-branding" their product. How to wrap up a message, that substantially remains the same, in a different way that will make public opinion and politicians think that something needs to be done.

The evidence about the positive effects of ICTs is now piling up. There are studies upon studies – of different value, interest and accuracy – but all point in the same direction: we would all be better off if we used ICT more. Paradoxically we had more interest for ICTs just over ten years ago – at the time of the Lisbon European Council of March 2000 – that some dubbed the "dot.com Summit" – than now. And yet at the time we had precious little evidence of the positive effects of ICTs on productivity growth, wealth and jobs.

The second difficulty is linked to the way in which ICTs produce their positive effects, especially the economic ones. ICTs offer great benefits but have their own constraints. The available evidence has shown that firms and organizations derive the greatest benefits from ICTs when they are able to re-organise their processes in way that take the best advantage of the possibilities offered by ICTs.

In 2000, at the time of the March Lisbon European Summit, part of the support for a faster take up of ICTs was due to a misunderstanding: that ICTs would give greater dynamism to the economies as they were and that this would have reduced the pressure for structural reforms.

The evidence that has become available since 2002/2003 has shown that ICTs are not an alternative to structural reforms. On the contrary, ICTs amplify the effects of structural reforms, ICTs produce their strongest effects in dynamic and flexible economies.

Another difficulty is linked to the characteristics of the public decision making process in all countries. ICTs are a pervasive technology, they are used in all areas of the economy and of society. The decisions on many processes, especially in the public sector or in legislation are taken by people who do not have a great understanding of the possibilities offered by ICTs.

ICT may be used in the financial services, in health, in education and in many other areas. For obvious reasons, the decisions in these areas will be taken by financial experts, by health experts, by education experts and so on. This leads often to suboptimal outcomes as those who take the final decision are not always aware of the possibilities that ICTs offer and

of the benefits of different choices. Too often there is a tendency to apply to the digital world the same rules that have applied to the world we grew up in.

Another obvious source of resistance is cultural. Some of us are more open to experimenting with new service and products, other are less. There may also be a generation issue. But there is hard evidence for differences which may have to do with purely cultural attitudes. In 2007 a study of multinational businesses operating in the UK between 1985 and 2003 suggested that US-owned firms' ICT efforts result in greater productivity than non-US owned firms. The authors of the study also observed that firms acquired by US multinationals increased the productivity of their ICT systems, whereas identical firms taken over by non-US multinationals do not. One explanation for these patterns is that US firms are organised in a more flexible way that allows them to use new technologies more efficiently.

There are countries where the dominating culture values tradition and the old way of doing things more than in others.

More than a general source of resistance, this is perhaps a factor that plays a great role in explaining the differences in take up between countries. A simple trip as a tourist to the USA or Southern Europe is very illustrative of the differences. Certainly the income gap is probably the most important factor explaining the differences, but cultural differences are clearly at play. It does not cost much to offer free Wi-Fi in the coffee shops, restaurants or even laundromats and yet this is not done in Southern Europe.

A final obstacle may be due to legislation. Inappropriate legislation may seriously constrain the take up of ICTs and reduce the benefits that one can get out of them. A particular concern being expressed these days concerns the risk of fragmentation of the internet ecosystem derived from rules designed to address a number of legitimate policy concerns: data protection, privacy, cyber security and so on. Their always a trade-off between the ambitions to address the public policy goals jus mentioned and reaping the benefits of ICTs. Many societies are likely to attach a very high value to these goals and therefore choose a more "costly" trade-off point.

Where do these difficulties leave us? If ICTs policy initiative have a limited effect what are the consequences? The policy problem resulting from this situation is that of a growing digital divide.

If the policy initiatives have a limited effect, what will drive the take up of ICTs will be market forces and cultural elements. Both are stronger in the countries that are already at the forefront of the use of ICTs.

We see already that the countries that use ICTs to a greater extent spend more public money on it and develop their policy initiative with greater determination.

Eventually there should be a certain amount of catching up, but this might become the dominant factor in many, many years.

KIP MEEK, Chairman of South West Screen; Senior Adviser, Everything Everywhere Ltd; Director of the Radio Centre, United-Kingdom, delivered a very distinguished keynote on the issue of unlicensed and licensed spectrum.

The growing demand for spectrum is massive, on both sides of the Atlantic and elsewhere in the world. Policy makers are talking about need to identify 2 times 500 MHz of additional spectrum. Which are very substantial amounts of spectrum relative to the amount of spectrum we have at the moment. Identifying and freeing up that spectrum is really difficult to do. With each successive block of spectrum which comes to the marketplace to be deployed in new sectors – particularly the mobile sectors, the time taken to identify free spectrum is getting longer and longer.

The technology "cognitive radio" is not just applicable in the unlicensed spectrum. It is also applicable elsewhere. Spectrum is not an infinite resource, but it is not used equally intensively across the different applications. The two sectors that use it very intensively are broadcasting and mobile. But there are other parts of the ecosystem, which use spectrum less intensively, such as security or public safety and we feel very nervous about the notion of either extracting that spectrum from these entities or sharing it.

But there are parts of the spectrum that are not intensively used and which are less sensitive. And we can also use cognitive radio technologies in a more controlled way than the unlicensed way to enable entities to share spectrum. This is something that should be brought to the attention to regulators both in the EU and the US.

This approach has been tested with Qualcomm and Nokia and it seems that shared access will have exactly the same types of economic benefits than those associated with cognitive radio used for unlicensed spectrum. We need a change in the regulatory approach on both sides of the Atlantic and elsewhere in the world.

In order to attain the full benefit of mobile broadband, which will be transformational for all economies in the world, it will be important to look at all the tools available and to enable us to exploit that energy. We should look at the application of cognitive radio approaches to use underused white spectrum in a in a controlled environment. It is not unlicensed it is licensed, but licensed for a primary and secondary user with QoS guaranteed.

To make a difference is and extremely testing thing to do. How we can make a difference? We cannot make much difference to the products and service that become available over the next decade. The way that happens it is difficult for us to make an impact on. But we can possibly have an impact on policy. But what is policy for?

Creating the right framework is very important and then allowing the private sector to be effective is also very important. The European framework for communications services is actually a very good one and intellectually very productive. It enables us to avoid some of the difficulties encountered within the Net Neutrality debates in the US.

But in terms of the way in which we encourage the private sector, we are probably doing too much. Particularly in Europe. Doing fewer things better and in a more targeted way would be the right approach.

The sessions **chair** and **moderator, DAVID GROSS, Attorney at Law, Wiley Rein LLP, USA; Former U.S. Ambassador Coordinator for International Communications & Information Policy at the US Department of State**, briefly summarized what has been accomplished during the session:

The panellists set forward the stage of the need for innovation, of new thinking and of new approaches but also recognized the need for predictability in terms of regulatory regimes. But certainly one of the themes across all speakers is the need for new investments, for the creation of new models, for the opportunity to have innovation.

This is a shift from discussions one decade ago, when there was a sense that ICTs and the technology itself can solve many of the problems facing us, but rather now we have seen the explosive growth in applications and distribution and of use of Internet and ICTs generally -- now that shift happens once again about the need for innovation in terms of providing opportunities through new spectrum -- through unlicensed as well as licensed opportunities.

But also the need for investments in terms of fibre deployment, more broadly than it happens today. Ultimately, it is the shared responsibility of both industry and governments to work together to find that way forward to allow for incubations of a variety of different approaches.

Lastly, the conclusion in terms of 'predicting the future and having that vision' is the humbling aspect, that none of us can actually predict that future. We look at where we are today and the rise of applications and the use of wireless technologies and compare it to a decade ago, when we had these discussion -- none of this was foreseeable, none of this was reasonably predictable. And therefore the need for flexibility and innovation becomes increasingly important.

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Towards Intelligent Platforms

The **moderator** of the panel, **ELLWOOD KERKESLAGER, CEO of Information Futures, L.L.C.**, USA, welcomed the participants and expressed his delight about the panel's composition covering service providers, manufacturers, software developers, standards organizations and community development organizations all the way from rural developments in the US to community development in Africa.

The session's **chair, OLIVIER PICARD, European Chief Strategic Advisor, Huawei** [http://www.huawei.com], provided with great clarity and skill and excellent

Introduction to the Session

In the last 10 years, the explosion of Internet and mobile access has changed the world. When comparing the evolution of mobile and Internet subscribers in Europe and Africa between 2000 and 2010, one can see that in 2000 Europe was already a major market for mobile but not at all a major market for the Internet. Africa had very low levels of both mobile and Internet subscribers in 2000. Today, Africa is rapidly catching up in both mobile subscribers and Internet access due to the decreasing costs and increasing power/function of both mobile switching systems and mobile devices.

In addition to the changes in the technologies there has been change within the industries, both the telecommunications industry structure and operators. European telecom operators were more successful than others and expanded out of Europe. The emerging countries' operators have also been very successful. However, this is only the beginning.

As regards new telecom services in the next 10 years, there will continue to be a shift towards a Digital Society, which means that the different devices will be interoperable – all of them, which is not the case today. Moreover, all media will be on the Internet and there will be big changes for TV. There will be lot of Internet TV and it is not certain that the usual digital TV will survive. In addition to that, there will be a shift (in users of the Internet) from people to machines as well as from hardware to the cloud. Within the next 10 years cloud computing will become a must; 70% of the companies, especially SMEs, will be using cloud-based services.

As regards ICT and today's value chain, there is more and more value on the application and device side and less and less value in the network. In fact, the networks are more and more commoditized. Today, if a telecommunications company like Huawei want to expand, it has to become an ICT company. This represents a very big change and is not only an R&D issue. A large part of Huawei's R&D is moving to IT systems in order to be one of the big players of cloud computing. But it is also a cultural change from telecommunications to IT, and in order to create ecosystems, the company has to be a global company. This is a revolution for the ICT world, and especially for Huawei.

Huawei's strategy is to move from a multi-network system towards a single network supporting multi-customer bandwidth demands and able to be seamlessly upgradable to emerging technologies for the next 10 years. There will be more and more broadband in the future. Operators will need more and more capacities. Apart from that, it is rather impossible to make any further predictions for the coming decade.

Huawei's strategy is to prepare seamlessly upgradeable platforms able to support "plug and play" all the applications for the future. The future is so huge and interesting that it must be easy to implement new platforms.

In fact, the most important issue and probably key to the success of ICT, clouds and the digital society will be regulation. Some people say that the European market was fragmented. This might be true, but at the same time one has to remember that one of the most important European success stories of the last decade was telecommunications -- a success that was due to the standardisation of GSM and the mobile network. With the right regulation and standardisation European industries can enter this new world.

During the **Q&A** of the presentation, the moderator raised the question whether one has to consider the cloud to be a device or to be a part of the network. In his answer M. Picard stressed that this is really the key question between the IT-world, the Internet and the telecommunications world. Corresponding to M. Picard the cloud is really managed and pushed by US companies such as IBM or Oracle. However, with the growth of the cloud, operators will have a central role to play. The telecommunication operators will have a key role to play – it will be a huge business for them. Such development also represents a way to escape from commoditization.

MARGOT DOR, Director Partnerships & EU Affairs, European Telecommunications Standards Institute- ETSI, [www.etsi.org], delivered an inspiring talk expanding on the issue of

Control of the Stack

In terms of mobile platforms, and operating systems in particular, there have been a lot of very interesting developments which do impose a number of questions.

The stack as it is today is composed of the network layer, the device layer, the operating system and the application. What has been happening over the last years and in particular last year is a sort of revolution in this ecosystem, such as the commoditization of the network plane but also in terms of the regional cartography: It happens that increasingly it is the operating system plane which controls the whole stack. Apart from the three or four big operating systems, operators in China are now preparing their own operating systems.

Operators at the network plane have a very big incentive for the industry to cooperate with the spectrum. What is happening in the spectrum will very much influence how much value they keep at the network plane. Big games are happening here -- with the threat indeed of being commoditized and becoming dumb pipes.

Revenue from connectivity is still higher than that of services, but the trends are definitely going towards the revenues from services. The question of the operating system level is: what can a telecom player be doing in this sort of stack in order not to be commoditized. There is currently an interesting debate starting in ETSI about whether there is a case for the

network operators and maybe device manufacturers to start working on a another operating system, based on open source but with different players in it?

There is also a question at the EU-level, because none of the players in this stack comes from the EU: Does this pose a question to the policy makers and the regulators? Just to remind that "industrial policy" was considered a dirty word five or ten years ago.

It also poses a question to standardization bodies because there are still many issues which are across the stack, such as the question of QoS, the question of security and privacy etc. It does also pose a question to the industry at large because this model is not only for telecom and smart phones, but it is going to be very pervasive in all sectors of the industries, such as transport, health etc. It has already been the case with television and cultural industries.

Standard bodies from the EU, the US and Asia will have to work together. ETSI will not do anything until the industry says they want to do something.

AMADOU DAFFE, CEO and Co-Founder Coders4Africa, USA, shared with great insight his expert view on a digital perspective for Africa

Coding My Way towards Success Bit by Bit ...

Cell phones and mobile Internet access are certainly among the most radical changes experienced in Africa in the recent years. Ten years ago both cell phones and Internet access were limited to the elite. Now, the total African mobile subscriber base is expected to reach 561 million by 2012. 90% of Kenyans use smartphones with mobile Internet access enabling end-to-end applications, such as m-farming and m-banking.

But, sustainability is an important issue – how to make it possible to sustain this progress? There is a lot of growth and a lot of technology – the question is how to make it possible for it to continue, to be durable? And also, how can people in Africa take advantage of it, not only as consumers but also as innovators and entrepreneurs to create technology and to add value to this whole spectrum?

A first issue here is to provide reliable, affordable access for African ICT professionals, students and the whole community; by giving access to these resources people can participate in this ICT phenomenon. In addition to the ICT professionals, Schools, Health Care, Businesses, and the government can begin the process of defining and developing mobile ICT applications to meet their needs for better, more efficient/profitable services.
A part of the above issue is the physical infrastructure. It will be important to build multiple Community Centers/ICT hubs to ensure access for all and the creation of locally relevant content. These Centers/Hubs also can provide the ICT professionals/students with support, capacity building and a focal point for more investment..

Kenya, for example, has consciously focused on ICT as a primary element in its future. The successful Kenyan model focuses on innovation. The Kenyan model actively emulates the Silicon Valley elements and practices so far as is practical/doable. They have leveraged mobile devices and the mobile Internet

One of the things that is happening because of the mobile boom in Kenya is a major change in the way money moves. The mobile network operator Safaricom leveraged a simple solution on how to do banking with mobile phones using SMS. They figured out complicated

ways of creating bank accounts and credit cards for Kenyans but the credit card is actually the cell phone tied to the SMS. Up to now revenues of $71 billion USD have been generated. This is a most significant driving force of the Kenyan economy.

Another initiative is m-farming where they delivered information to the farmers and the farmers look back and figure out how to collect information from the government. For instance, one can imagine that there is a problem with crabs. The government can actually push data; m-farming enables farmers to check the price of their crabs that day on the market.

Coders4Africa is a pan-African community of mobile device software developers extending themselves to help address needs in a broad range of African society. Coders4Africa focuses on creating applications in agriculture first, because agriculture is first in the number of people employed in the sector. Education, health care, local businesses, water and sanitation, and government are also very important sectors.

Because everybody has (or has access to) at least one cell phone in Africa it has effectively become the “PC of Africa”. The increasingly available and affordable mobile Internet access and the increasing power of mobile devices able to support an endless array of applications has made the mobile device and its apps the platform of choice for economic development and for addressing other social needs.

At the core of Coders4Africa’s model is the organisation and the goal of building a cadre of 1000 programmers and content creators by 2016, which will be wrapped around a core community of experienced professionals which sustains, but also helps to extend the initiatives to the rural areas. The vision of Coders4Africa is to create and support this pan-African community.

The goals of Coders4Africa are based on the ability to leverage the wireless communications described earlier by creating more applications and solutions. This will be achieved as part of the process of educating, certifying and continuing to support the 1000 developers. One of the most important goals is to build sustainable capacity by introducing Community Centers/DevHubs across Africa, providing developers an open space to innovate and create solutions that solve problems their community faces.

Coders4Africa believes that by building capacity (giving people the right tools and the right environment) and empowerment (giving them the training that they need to be able to maintain the infrastructure), sustainability will be achieved. And that, will lead to national self- suffciency in ICT, a key element of the national economy.

WILLIAM C. SHUFFSTALL, Senior Extension Educator, Pennsylvania State University, College of Agricultural Sciences, USA, delivered with great enthusiasm a very interesting presentation on

Filling the Connectivity Gap in Rural Communities

The presentation addressed the following points: Internet Connectivity gaps in rural areas; a community based model to fill the gaps; and adapting that model in Africa through partnerships.

Connectivity in the context of community can be thought of as a three-legged stool: The access to the infrastructure has got to be there, but that infrastructure will not truly be taken advantage of unless the people in those communities are using applications to increase their social and economic well-being as well as using it for education.

A third component that is equally important is community content. Content is provided to the community as a community value by the government, or by local businesses or local NGOs, healthcare, schools as well as information about public events -- having that information available on the web for people in the community as well as outside the community.

For nearly a century Penn State College of Agricultural Sciences has been using economic and community development processes to speed the diffusion and adoption of technologies that relate to agriculture.

And nearly a decade ago Penn State initiated a cooperative effort to integrate these processes into an Information Futures, LLC community networking model.

Connecting communities is designed to engage leaders and residents from across a community and across activities that increase their knowledge about how they can benefit from broadband Internet connectivity; and strategically develop projects that close the connectivity gaps in the community. Part of that is helping the community to understand how this technology "stuff" can be used, how it can benefit them. Equally important: Getting a sense of what is the current status of the community relative to the three factors of connectivity.

This model is available on a website (www.connectingcommunities.info) that is being used by a number of universities and NGOs in at least ten states across the US to help those communities fill their connectivity gaps. The model not only addresses connectivity, but is really a community development program wrapped around broadband and the use and availability of that. And in addition, it develops some skills and capacities that are needed by communities to address other issues of equal importance.

Penn State College of Agricultural Sciences is working with Coders4Africa to adapt the Connecting Communities model for application in Africa. At present teams are built around agriculture. Penn State has a number of university partners and projects in Africa as well as Eastern Europe. Those projects mainly focus on helping those countries improve their food and fibre systems. The question 'what are some things that they would like to do using technology' is asked to that existing relationships. The hope and thinking is that these para-projects will serve as platforms for building partnerships with healthcare professionals, education and government in those countries so that additional segments can engage and take advantage of this technology and infrastructure that is being put in place.

In summary, truly connected communities are characterized by a) access to Internet connections; b) broad use of internet applications by all sectors of the community; and c) a significant amount of local content and services. Connecting Communities is a model for improving connectivity that has seen success in the US and that is currently being adapted for use in Africa through partnerships.

THERESA SWINEHART, Executive Director, Global Internet Policy, Verizon Communications, USA, , [www.verizon.com], brilliantly summarizing the current major trends in broadband service delivery in the US:

LTE, M2M and Clouds

The discussions demonstrate that we are looking at a shift in how we look at communications from traditional communications of telecom over into ICT and the opportunity that exists with that.

Generally, Verizon's footprint is around wireless -- domestically mainly for consumers and small businesses and internationally in particular enterprise customers. With that regard, the company is keen to keep an eye on where enterprise customers want to be going in the future and the emerging economies is one of these areas.

A map of Verizon's international presence demonstrates two things: The vastness of the infrastructure itself, but in the context of the today's conversations, when looking at the Internet in IP networks, the opportunities that exist – and not just with the global Internet backbone, but also with the landings of the undersea cables, in particular in East and West Africa most recently. The opportunities in that part in the world and other parts of the world are an important part of the dialogue to intelligent networks and intelligent platforms and opportunities for all societies.

LTE in the US is really changing the way that people are thinking about wireless. We can see our children sit with mobile devices of any sort and be playing games, but as they go to university, they are going to have an expectation to get their education materials through these devices. As they reach adulthood, they will be expecting to conduct half of their transactions – whatever that may be - over these devices. This is a generation that doesn't know a world without using these devices.

With regards to LTE, discussions are starting about a worldwide implementation of that in spectrum policies in different parts of the world. This particular technology has very good coverage and building penetration which allows for new kinds of services.

Within the US Verizon has implemented LTE and expects national coverage by 2013. The unique part of this is the speed factor which is ten times faster and importantly the latency is reduced by 50%, which has strong implications for a variety of services and is really transformational. To quote US President Barak Obama: "It's about a fire-fighter who can download the design of a burning building onto a handheld device, a student who can take classes with a digital textbook, or a patient who can have face-to-face chats with her doctor."

This is the future that we are looking at and we are seeing it at in many different parts of the world. In particular with regards to machine-to-machine, this technology is really becoming transformative. We used to have a situation in which the device was really a traditional human-to-human communication.

Similarly we also have the situation of the devices in the transfer and the use of computers in communications. But we are also seeing the M2M connections. This is a very unique area that will change things from what we know. Some MS2 is in high bandwidth usages but some of it is also in low bandwidth usage or mobility.

M2M is used for instance in security systems or smart grids. At the same time devices are put into automobiles and technology are detecting when there is an accident on the road, determining where it is and get services much more rapidly. In the US there are many M2M opportunities with regards to healthcare. Future high bandwidth services using M2M (both landline and mobile) are for instance downloading HD content, 3D TV, 3D HD medical imaging or HD home security monitoring.

With regards to cloud services, there is a shift in the Internet's ecosystem. Companies are cooperating and collaborating while at the same time competing with each other. There are shifts in business models and opportunities and it is not possible to know what the future holds for that. So, businesses need to keep their minds open towards new opportunities.

But it also requires thinking about the competitive dynamics and the complex policy issues around cloud based security as well as national rules that could impact cross-border services. We do not want to have situations where we have the development of applications or services that are merely impeded by the ability for transport of the data flows.

Data protection continues to remain a very important issue, especially because more and more resources are used online, and business models and data flows continue to evolve. There is a need to retain the flexibility for commercial arrangements and the opportunities for continued innovation and growth and not impose heavy regulatory models.

In order to unlock the potential from the Internet ecosystem, there is a need for a stable, reliable and trusted infrastructure. We need to foster innovation and ongoing expansion of the Internet and stimulate investment and competition in order to continue these opportunities for the next generation.

AARTI HOLLA-MAINI, Secretary General, European Satellite Operators Association – ESOA, delivered a most captivating speech by presenting the viewpoint from the European satellite operators with regard to

Achieving Broadband for All

ESOA is the trade association of all European Satellite Operators of which there are 11 satellite operators in 8 Member States of the Union. They operate over 150 satellites and provide global coverage of communications services, for audiovisual, TV, emergency communications, and many more areas. The world's 4 largest satellite operators are European companies.

The session's subject is "Towards Intelligent Platforms" but at least 10 million Europeansstill have no platforms at all. There is very little attention given to the Digital Divide or the 2013 target of the European Digital Agenda. People do talk about Broadband for all and President Barroso in his Economic Recovery Plan in 2009 gave his own target of eradicating the Digital Divide by the end of 2010. That did not happen. The 10 million are still there and they have already been there for a decade. Do we see policy makers showing major upset about this and being pro-acive? In fact we don't.

That target 2010 for President Barroso was pushed by the DAE to 2013 and even that now is being pushed back to 2015 with the justification of delay in releasing the digital dividend in many EU Member States. Spectrum alone is not the answer and it is also not the problem. It is part of the part of the problem and it is part of the solution, but certainly not a stand-alone issue as it is being made out to be.

In Europe, Member States have to arbitrate between short and long-term investments when they come to implementing broadband and it is logical that Member States think long-term. But unlike other areas of the world, like the US or Australia, in Europe there is no dedicated policy for the Digital Divide and accordingly, there is no dedicated funding just for that. In the US, 100 million USD was earmarked for rural areas and specifically satellite projects.

In Australia they have implemented an interim and long-term satellite solution procuring two new satellites -- again, simply to overcome the Digital Divide. Making use of satellite does not necessarily mean satellite on its own, it might be on its own for the most remote users, it might be in a hybrid solution - using WiFi around a single satellite connection to the Internet backbone for a community or even making use of existing telephone lines.

In Europe funds are being deployed typically and usually for fibre but as is natural with the implementation of this technology, it takes time and it is not reaching rural users in an acceptable timeframe. The statement *"We know you don't have Internet but don't worry, by 2020 you'll have 30Mbps"* encapsulates the EU policy for the digial divide and is not an acceptable promise for those with no satisfactory broadband today. The reality of the situation is that regions all over the world in every country have diverse characteristics. One-size-fits-all-solutions do not deliver on all of the needs. We need pragmatic and informed solutions.

To show two good practice examples, two quotes from decisions, one from the UK and one from Italy, which were notified to DG Competition of the EU:

In Cornwall they stated as part of their submission to the Commission: "Where the costs of deploying fibre […] were prohibitive […] the preferred bidder will provide basic or advanced basic broadband services via satellite[…] typically where existing broadband infrastructures […] cannot provide minimum download speeds of 2 Mbps at affordable prices".

Italy they noted in its national broadband plan for rural areas: "Financing of users' access in areas where morphologic conditions make either impractical or economically unviable the set up of terrestrial facilities". "Satellite, a complementary solution, alternative to the terrestrial backhaul, to overcome the digital divide".

Member States do not make broadband plans that distinguish between delivering basic broadband and deploying next generation networks. It is natural for them to think long-term and this is also what the EU Commission is pushing them to do. It is all about delivering the 2020 objectives of 30 Mbps and 100 Mbps. There is a presumption that the last few percent are the most difficult to connect. And they are right – if you are talking about bringing 30 Mbps to those people, they are indeed the most difficult to connect, because then you are only talking about very few technologies. But as soon as you stop talking in terms of enabling NGA for them then this presumption is wrong. It is about bringing them online, today with good quality Internet, and for this there are solutions which are ready today, which actually are the quickest, the cheapest and easiest to connect! Today's satellite equipment is small, easy to install, usually free for the end-user, and easily movable.

The French region Auvergne received an award from the DG Regio, the DG responsible for for regional development, for achieving a 100% connectivity in a very short timeframe. 0,4% of all households are connected via satellite. This is less than half a percent of the population but still corresponds to 3000 households. Four different service providers compete to serve only these 3000 households!

In the context of satellite broadband today, offerings of 30 Mbps exist, but they are typically for businesses and not for consumers – consumer broadband via satellite today can offer all the standard broadband Internet applications that households need and use.

During an event hosted by ESOA in May 2011, Commissioner Neelie Kroes made a couple of statements: “New satellites offer downloads at 10 Mbps per second, which compares well against many of the wired ADSL speeds consumers now receive”. She said that ”satellites are a vital component for the 2013 Digital Agenda target. Technologies like […] satellite […] can be the most cost-effective in such areas where more common, landline solutions are not an option”.

Moreover, Ms Kroes identified the most important point, which is the need for information. She said, “in order to deliver to that last 5%, we are going to have to get creative about the technology solutions. This is absolutely vital.”

When we talk about broadband, Member States and regions are familiar with traditional technologies like fibre, and they are less familiar or sometimes even completely unaware of more recent innovative solutions, such as satellite, that very often works in a hybrid mode.

We need policy makers throughout Europe to remind Member States of the importance of bridging the Digital Divide, which is encapsulated in the 2013 objective of the Digital Agenda. We need them to provide adequate information about all of the available technologies available to Member States. Moreover, it is important to rebut the presumption that this last few percent is the most difficult to connect – this is simply not true. And lastly, policy makers should invite regions to submit balanced proposals to DG Competition that really show that they are trying to address not just the ambitious NGA objectives but also that they have plans to connect the last few percent of households on their territory.

We are waiting for guidelines from DG Information Society on broadband investment. And more recently there has been a proposal from the Commission on the Connecting Europe Facility. It says that satellite is included, but at the same time says that investments proposals will only be accepted if they propose to deliver 30 Mbps and above. So, unfortunately again, this seems to be another NGA reminder while the Digital Divide still exists.

OLIVIER DUROYON, Director Public Affairs, Alcatel-Lucent, France, [www.alcatel-lucent.com], shared with great inspiration and clarity a few examples of actions and organizations mobilizing for sustainable growth:

As mentioned earlier, mobile data explosion is one of the challenges and is occurring with a magnitude and speed that was never before experienced. This requires significant investments in all aspects of the networks and platforms in access, both wireless and wire line, core and backhaul networks.

In many countries, in coordination with the private sector, governments have stepped in to bridge the investment gap for this NGN roll out. Depending on regulatory and policy frameworks the approach is different and leads to local investment models based on infrastructure sharing.

An additional driving force in the context of the next intelligent platform is mobile Internet access. In developed and emerging countries and for many people in the world smartphones and tablets will be the first and only device for mobile data connectivity.

Ubiquitous mobile Internet connectivity is essential and will require substantial upgrades in mobile backhaul networks. Those upgrades of mobile networks are going to be tied to upgrades in fixed networks. It is not surprising that the first examples in the category of government driven projects is national backbone. But in addition to this need of backhaul, spectrum will need to be widely allocated to enable data hungry mobile services.

The second category of government driven initiatives are intelligent platforms of open backbones but combined with shared wireless access. Several countries are envisaging this type of project. For this platform it is essential to allocate the sub-1GHz bands with wide channels to reap the benefits of LTE technology in terms of lower latency, higher throughput and to lower the cost of coverage. Spectrum in the above 1GHz could be used for small cells developments in dense urban environments or outdoor connectivity. The spectrum allocation policy should therefore shift from fragmentation with prioritised voice centric services to consolidation and sharing to enable data centric mobile.

A third category of government driven projects can be identified: governments have a key role in fostering adoption of new services. So some countries have taken a more daring and disruptive move in setting open NGN and access networks, such as Australia, New Zealand or Singapore. But what about Europe? Europe has set ambitious targets concerning coverage and service availability in its Digital Agenda.

However, this Agenda has been estimated to require 200 to 300 billion EUR investments in connectivity platforms and facilities. During the last semester of 2011, Commissioner Neelie Kroes has asked the industry, and in particular the CEOs from Alcatel-Lucent, Deutsche Telekom and Vivendi, to lead some recommendations from the industry for actions on how to reach those ambitious targets and answer the question: What can be done for Europe that faces major challenges in bridging these huge investment needs?

The approach used by the Commission based on an inclusive process: The digital industry today is highly interdependent and any solution has to come from an industry-wide effort embarking the entire ecosystem. The second point is that was executive led in order to get commitments from the different companies of the entire value chain. And finally, it was a forward looking mission embracing and driving change towards a new 2015+ cross-industry standards use rather than preserving status-quo.

The working groups that have been created are “New business models for Internet development”, “Technical framework for digital delivery -- Interoperability and Standardization” and “Investment framework and financing sources to foster NGA roll-out”.

The results of 6 month of rich and sometimes emotional debates are 11 recommendations, that can be categorized in four blocks:

First, there is a need for a right environment. The two strong ideas behind this are: scale and specialisation are overall market trends and there should be one binding European framework.

The second block of recommendations – the net neutrality block -- refers to the necessary rules to build a sustainable Internet. The recommendation calls for the promotion of traffic management differentiation while securing best effort. These differentiations typically come along with two-sided business models, based on commercial agreements.

The third block covers the need for technological platforms enabling the single market for digital delivery with two aspects: To achieve an IP-based QoS Interconnection and the development of Next-Generation bit stream access across multiple technologies.

Finally, the fourth block refers to investment models. The market for NGA will be differentiated based on local circumstances, considering that in areas with no infra-competition, co-investment models will be promoted, but also roll-out context improvement with demand stimulation, de-risked investment and reduction of roll-out costs.

LUIS RODRIGUEZ-ROSELLO, Head of Unit Future Networks, DG INFSO, European Commission, brilliantly outlined the

EU R&D and Innovation Perspective

The basic principles regarding the deployment of infrastructures, research and innovation are set out in the Digital Agenda for Europe and the Innovation Union, as main policies within Europe 2020.

The first one is supporting infrastructures and poles of innovation. This includes e-Infrastructures and does not only mean the well established high speed research networks, nor the traditional basic physical infrastructures, the basic pipelines, but also those referred as virtual infrastructures, cloud computing infrastructures for example. They could be based on the current regional clusters and the European Institute for Innovation & Technologies. Satellites are in this respect a key element of Europe-wide support infrastructures, as they are often the only option to ensure broadband access in an affordable way to all Europeans as targeted at the Digital Agenda for Europe and the best alternative to ensure the protection of critical infrastructures.

In order to further develop and integrate new infrastructures, applications and services, large open test-bed facilities are needed. The Commission is funding many projects which are trying to develop experimental facilities for testing all these new technologies. Main labs from all over the world participate in many of these projects.

Furthermore, it is important to consider the involvement of Member States in large scale experiments. Innovative and interoperable solutions have to be tested in general interest areas, such as smart cities, regions etc., and for big societal challenges (healthcare, education, etc). Another important issue is the support of open standards and platforms by linking standardisation and research and leveraging it as a tool for innovation. This is important to bring ideas to the market, to have more smarter and more ambitious regulation targets, and faster setting of interoperable standards. It is about empowering the user by providing open systems which are compatible and interoperable.

The “Connecting Europe Facility“ programme the EC has recently proposed intends to look at both layers, the layer of basic infrastructure and the digital services throughout Europe. Basic principles are to focus public intervention on the stimulation of private investment where the market case is weak and to develop common architectures for digital services. The objectives are to support increasingly mobile citizens, to reduce transaction costs for enterprises, particularly SMEs, trying to search growth opportunities, enabling the emergence of the digital single market and stimulate growth of cross-border services, such as trans-European backbone connection for public administrations, cross-border e-Government services, access to public sector information and multi-lingual services.

The EC is currently defining the new R&D and innovation avenues within the so called Horizon 2020. Striking the right balance between medium to long term actions by a more systematic coupling of R&D with innovation is an important aspect, as well as the pooling of resources, to get more impact driven research and innovation as called for in the Innovation Union. There is a plethora of novel web services emerging, with new actors, in particular from games, social networks or creative industries, which we should further mobilise around innovation goals considering the importance of Internet infrastructures and services in the entire economy and society.

ICT are enabling technologies, as they open up new processes and services, but they are also transformative of all sectors of the society and economy. In order to reap the benefits of these technologies we need cross-sector partnerships. The objective is not to make ICT being pervasive in the society but also to build partnerships beyond traditional ICT borders with other industries and sectors such as energy, agriculture, health so as to ensure a more efficient use of our resources and a smarter service provision.

What are the main trends affecting research and innovation in the communications networks area? Obviously, there are a number of societal drivers, such as urbanisation, ageing, mobility of people, socialising through networks, but also more concerns about privacy, security and energy efficiency. Research and technology should match these societal drivers so as to ensure ICT helps to develop the society and that users' expectations are properly taken into account. The two sided interaction between technologies and society should be paramount.

Some of the trends, such as increasing needs of capacity and efficiency, are due to the massive increase of traffic, especially in the wireless area. We need better and more efficient networks and we need to use more intelligently the current resources. Scarcity of spectrum is a key concern in this respect and it will be even more the case in the near future. There are many ways to increase efficiency, e.g. to offload spectrum, to use cognitive radio, white spaces etc. We need a new generation of networks capable to adapt in order to ensure an optimal use of resources and an appropriate quality of services and users' experiences. This can be achieved by virtualisation of the network infrastructures, and at the end of the day, we should go for software defined networks. These infrastructures should be able to handle big

amounts of data, e.g. video streams, HDTV, but also to a smaller ones carried out for instance by M2M communication or by the Internet of Things. The Internet of the Future should be a platform for innovation for a smarter society providing new business opportunities.

SAMIA MELHEM, Senior Operations Officer Global ICT Department, World Bank Group, provided a brilliant and thoughtful overview on the World Bank's implication in transformative ICT projects:

It is All about Transformation

The mission of the World Bank's ICT Sector Unit is to innovate, to connect and to transform. There was an increased demand for projects that can be called "transformative" during the last 4 to 5 years. Every country that comes to the World Bank has a 'Vision 2020', a 'Vision 2025', a 'Vision 2030'… where technology plays a huge role and is a driver for development. The World Bank's challenge is to help their clients to get where they want and to get there fast, to reuse existing know-how and to work in collaboration with the private sector and the academia. After all, the World Bank is a financial institution and not a technology company.

The World Bank has gone from making massive investments in reforming the telecom sector by opening up the sector and opening for competition to what the Bank is doing now in transformation. Around 80 billion USD have been invested in ICT applications in every imaginable sector. Transformation is really trying in most of the client countries to transform a specific agency towards a more modernized entity.

Most of the funded projects concern infrastructure, but there are more and more projects related to content, shared services, e-Government, portals etc.

However, unfortunately each one of these sectoral applications is in a silo with very little interoperability. And each one of these is creating its own silo system and very little bridges in the same country -- let alone in the same region. The World Bank would like to get to a type of integrated approach with a 'government in a box model' and all the services linked at the foundation level and in each ministry.

There is an increasing need for mapping, geo-spatial data, security and record management – all needs which the World Bank did not work on five years ago.

It is not about technology right now, it is all about transformation. There are technology solutions for every possible problem we are trying to solve. The problem is that there is not enough time nor money to do capacity building, to do change management or to roll that out at a massive level in each one of the countries. Scale does matter! What you are doing in Estonia or Albania or Mauritius can not be replicated in Kenya or Algeria or Mozambique. The situations in these countries are totally different. One really needs expert project managers to start an ICT transformation project and complete it, going from basic infrastructure that does not exist and that has to be rolled out in the most economical way, and then talk about the application. And none of us has any clue of what a particular application for a particular need in a rural isolated village is, because we do not live the lives of these people and do not understand their needs.

There is a need to target the offering while making it the most economical possible and use existing solutions and not start inventing software from scratch -- which was something rather common in the 80s and early 90s because a lot of these ICT applications in the public sector

did not exist. Today, with the cloud and with all this amazing innovation that is out there, it is really a matter of pick and choose the right application and then localise and adapt it to the particular case.

What people often forget is the issue of skills: Even if there are more jobs created than eliminated by ICT (for each job that is eliminated often from the public sector, 2.6 jobs are created), they are all in the ICT sector space and in most of the countries the World Bank works on there are no skills! There is a critical skills gap that needs to be solved.

There are many new trends and opportunities. How to use them to help in the co-creation model? How can we use the crowd sourcing to help us have complete data sets from governments the World Bank is working with? There is lots of information and data available -- the challenge is to really get the right one and have it used in the right way. But also to make sure that opening data does not create social unrest, because for some people who had no access to information all this information all of a sudden can be too much. Therefore, some behaviour change has to be discussed and put in place.

There is a need to work out a way to do PPPs. There are incredible contradictions: The World Bank sometimes deals with donors competing for the same objective and not working together like they should do, a private sector being sometimes more eager to sell licences than of solutions, and an academia afraid to lose intellectual property and not sharing enough. There is a lot of contradiction, but also a common goal which is bridging the digital divide, creating open governments and societies, bridging all these existing gaps, and economically getting where we want to be in 2020, 2025 … There is the need for all of us to continue that dialogue and to find ways, behaviours and programmes where the contradiction is minimized.

Most of the World Bank's client governments willing to do e-Government and ICT usually have a genuine desire for governance. There are also the issues that they have been faced with for many years -- for instance postcolonial years, which is a defective public system with civil service laws that need to be amended. It is also important to know better how the donors work so that they can make the best use of the World Bank's expertise and finally again, using the crowds, using citizens to push everybody for social accountability. This is what the World Bank is trying to do in its Knowledge Platform Project.

For instance, the open data programme the World Bank is doing in Rwanda, Kenya, Moldova or Morocco: The objective is, through loans of the World Bank, to put together the elements of open data by creating policy and standards, helping have data sets, helping with the technology, the change management etc..

The programme relies on local developers; the idea is bringing these experts together and giving them the business challenge -- for instance in Rwanda the objective is to have an inventory for rural roads. Why do we need five years to do that? Maybe with a set of 100 well trained dedicated young men and women, deployed all over the country, the corrected geo mapped information could be available within one or two weeks. The idea is to pay these young people what they deserve and to help them to get further training so that they can help the World Bank in further projects.

ANDREW ROBINSON, Chairman of the European Commercial and Consular Office in the UK, and adviser to the new E-SAPE project provided a sharp, short, colourful presentation of a new EU project

E-Sapè

e-sapè means eLearning in Corsican. The e-sapè project is a project funded by the European Commission within the framework of the European Social Funds (Axe 4) and runs from 2011 to 2013.

The project is led by the University of Corsica, France. Further partners are the University of Highlands and Islands, Scotland, the French organization Compagnons du Devoir, the University of Newcastle, UK, and the University of Budapest, Hungary.

The challenge is to provide eLearning in Corsica. Corsica is a place of great beauty and distinction, and is seeking to match these assets with improvements for its people, especially in the hinterland and villages. E-SAPE is a project which seeks to foster training and apprenticeships using ICT. The phrase “savoir, savoir-faire, savoir-être” means that the project tries to create people who are confident and work collegially using ICT. It is not shaping the future – it is shaping tomorrows citizens, with ICT as a tool for work and also self-fulfilment. One of the mottos of the Compagnons is relevant here : “Faire de sa vie un chef d’œuvre” – “Make your life a masterpiece”.

The partners are Scotland’s newest university, UHI, which became the 15th Scottish university in August this year, serving a very scattered learning community across large distance of mountains and islands, using both English and Gaelic, just as Corsica uses both French and Corsican. And there is the Compagnons du Devoir, a Grande Ecole des Metiers reviving “metiers nobles”. And here is the challenge: If the industrial revolution moved us away from some aspects of our humanity, we must make sure that ICT does not make this occur again with screens and isolation reducing our humanity. Can we combine, heart, hand and head to create the new person – the new citizen? This is a massive challenge. There is also another aspect to the E-SAPE project : it is going to help create a new cluster in Marine Biotechnology using the skills of Newcastle in the marine area, and Budapest in terms of mastering the changes it made to management in its transition from communism into Europe.

And look at also on the interesting thing of using, working in and respecting two languages: French and Corsican, just as in Scotland English and Gaelic. It is this new sense of an identity within a national and European framework. And above all, working with local communities. They want to know that they are empowered, that they own this so that they can feel a sense of place and pride.

There is a challenge for business too: the challenge to create and sustain more SMEs in places like Corsica, reduce isolation and increase access.

What will success look like in a few years time? Creating new, usable knowledge by and for Corsicans and shaped by the project partners. And above all perhaps a sense of confidence for real and virtual connected islands as innovative clusters.

“Plus on partage, plus on possède, voilà le miracle” – “The more we share the more we possess, this is the miracle”. To think about the sea as a new source of energy but also to provide waves of innovation. And above all, to note that the peripheries of Europe, whether in the Mediterranean or in the north, can play a role as a model for our society.

Data Governance:
Information Assets, Security and Protection Critical Issues for Society

The session's chair and **moderator**, **STEVEN ADLER, Founder & Chairman of IBM's Data Governance Solutions,** USA, [www.ibm.com], welcomed the panellists and opened the session by sharing a different perspective on data governance and security and privacy provoking to think a little bit differently about this subject:

Data Governance Systems

IMB is probably the founder and innovator on data governance worldwide. IBM Data Governance Solutions was created in 2004. IMB also had a Data Governance Council with 15 organizations who created a very big Maturity Model in 2007 and 2008. This Maturity Model was used to benchmark organisational behaviour and effectives.

Last year in 2010, IBM decided to publish that Maturity Model under creative commons open source licence and we posted online in a social networking environment of Information Governance Community. The community brings together 2000 practitioners from around the world who collaborate on data governance, security, privacy, data quality, architecture issues and work on defining a Maturity Model. It is a global community, working interactively in a crowdsourcing environment. It is the largest of its kind for this market and anybody can sign up for free and use the Information Governance Maturity Model which is in a form of interactive assessment that you can take and benchmark our own organization's maturity across eleven different disciplines but about 150 different questions and compare yourself to anybody else in the community. It is a rich resource that covers a wide spectrum of issues.

In 2010, the US Secretary of State, Hillary Clinton, talked about "a new information curtain is descending across much of the world," and what she meant is that there are 40 countries around the world blocking access to the Internet, social networks, email or various online services. And not just these countries like Iran, Egypt, or China but also within many of the most enlightened nations there is still very low rates of broadband adoption. In many rural areas there is very little access to high speed Internet. It is time to start recognizing that to do without high speed Internet is to really be enslaved. It is time to start thinking about the access to information as a human right itself – not the right to expression which is entrained in most constitutions as a human right, but the right to learn, the right to be informed, the right to have access to information, not the information that you get as a service from your government, but the right to see any information, anywhere in the world at anytime. In May 2011, the United Nations published a paper affirming that position.

With that right comes certain responsibilities, and among this responsibilities is something we do not think very often in this security and privacy world and this is once you have the right of information, you have the right of disinformation. And the challenge we face is that with a large amount of information we are constantly confronted with disinformation. Nations and

corporations are run by human beings. Every human being uses disinformation as a policy tool. Therefore every nation and corporation uses that tool as well. With greater access to information comes ubiquitous disinformation.

And that leads to one of the fundamental rules of data governance: Never trust unverified information. That is the important challenge today and that is why information driven organizations use information to tell facts from fiction. And this is a huge challenge that we all face because we are confronted with that challenge every day when we read things online, in a newspaper or see a video.

The goal of information governance is business transformation. The goal from a legacy information sharing model is to shift towards a more horizontal model, in which information flows across organizations without regard to hierarchy, or structure or legacy structures.

It is easy to say these things, but one of the key challenges that we face in a growingly complex society is understand that correlations between many of our policies. Last year IBM started some work with the city of Portland on something called System Dynamics. It is the theory that like the network we are all interconnected. That interconnectness means that our policies have an impact on people that we may not expect. What IBM did with Portland is to start modelling those interconnections and correlations in a complex ecosystem like a city to show policy makers how they can make more intelligent and smarter policies.

JIM C. WILLIAMS, President and Founder Media Strategies and Solutions, LLC, USA, delivered a very incentive presentation on

Privacy of whom from whom?
Tradeoffs that consumers seem willing to make (but pirates are not).

Scene 1 is the clean and legitimate market, e.g., the local grocery store. The actors are the consumers and sellers (of content). Privacy of consumers from sellers?

Scene 2 is a dark alley, black market. In that case, the participating actors are the pirates and the enforcers. Privacy of pirates from enforcers?

When taking a look at one of those actors, the seller in the first scene and the enforcer in the second scene, it turns out to be the same entity: It is the owners of the content (major motion picture studios, TV producers and the various produces of content around the world) and then the distributors who have the right to sell the content.

Though every once in a while, the government will act on sellers behalf in enforcement regimes, such as France's 3-strike regime (Hadopi law).

What are the tradeoffs? There is a tension between security and privacy. There are two basic reasons to the content owners and distributors seek tradeoffs, a compromise from the consumer/ content buyer that reduces their privacy – something they are giving up. One is just to identify (e.g., via credit card) and sell to their customers, e.g., via "ultraviolet", a new way of digital rights authentication and cloud-based licensing system for consumers of digital home entertainment content, TV Everywhere or similar initiatives bringing content to every device through multiple paths to the consumer (e.g., Disney Studio All Access). The second is to identify and thwart pirates.

Who will accept these tradeoffs? The consumers will be happy to accept it if the service is compelling. Pirates absolutely will not and will fight.

Policy makers need to enable these legitimate tradeoffs between privacy of customer and security of service in the interest of economic growth in legitimate content markets. The loudest opponents to such policies will continue to be the pirates who are free loaders and do not contribute to a healthy economy.

CHRISTOPHER BOYER, Assistant Vice President Public Policy, AT&T, USA, [www.att.com], gave a most impressing expert presentation on

Mobile broadband as a catalyst for change.

Mobile broadband is a catalyst for enormous technology change.

The Top 10 strategic technology trends for 2011 published by Garder in October this year, included media tablets, the trend towards consumerization or bringing their own technology into work, mobile applications, mobile App stores, social and contextual user interfaces, machine to machine and crowd computing. All those top 10 trends are enabled by mobile broadband connections, whether that is the explosion of social networks, of individuals accessing them from multiple mobile devices, or smart grids, or m-Health applications that increasingly rely on mobile networks, or the Internet of Things, or cloud applications. It is clear that mobile broadband is a catalyst for tremendous technology change

From a service provider perspective this is creating an enormous challenge. Big data is clearly an issue for a company like AT&T in terms of valuing the traffic that is put over its networks.

Trends in mobile data traffic show that voice traffic is basically stagnant. At the same time there is an enormous growth in data traffic predicted until 2015. But also the type of traffic is dramatically changing. There is a rapid increase in streaming video services and less the use of web services etc.

Corresponding to the Allot Mobile Trends 2H2010 Global Mobile Broadband Traffic Report, in the second half of 2010, 37% of the mobile data usage was video streaming, 30 file sharing, 26% web browsing, and 4% VoIP and Instant Messaging.

There is a huge increase in the data but also the uses are changing. These shifts - the mobile traffic moving towards high performing apps such as video streaming, is driving the need for more speed, more bandwidth, more reliability and security.

With regard to consumer cloud computing applications, a lot of people think that cloud computing is a new thing, but the point is that there are a wide variety of crowd services in the marketplace, whether it is basic Webmail, messaging and productivity apps, or online back-up services, photo services like Flikr, or entertainment services like YouTube or Pandora etc. All these applications have been out there for a long time. Consumers have been using the idea of cloud since a long time. It is an application that resides in a cloud or in a network and is accessed through a slim device.

Another trend is the rise of social. In 2010, there have been 0.9 billion global social network users. Corresponding to predictions, this number almost doubled in 2015. The majority region for access is the Pacific Asian region.

What does this mean from a policy perspective. It is clear that technology is driving an enormous change. Consumers want access to content from any device. This is raising significant challenges for service providers, such as AT&T, e.g., in terms of how to keep up with the demand or spectrum issues. And there is a need for service providers to make significant investments in their networks to continue to enable these trends.

And there certainly issues associated with security and privacy. In terms of security there is an increasing variety of cyber-threats, threats that are targeting specifically mobile devices. That challenges both the public and private sectors.

Another issue is consumerization. For businesses, the fact that consumers now want to bring their devices into the enterprise raises challenges around 'how to extend the traditional security parameter' and cover the wide wide rise in devices that employees are using to access networks.

In the past, discussion happening in the US and elsewhere on 'how to improve cyber-security'. That includes issues around information sharing and cyber-threats, about what information can be shared between the government and the private sector and how can that be used to better stop attacks. It is important to have a broader discussion on how to stop attacks before they affect the user.

Other issues are how to adapt industry security standards and "best practices", data breach, law enforcement access, or identity management.

In terms of security, a lot of these trends actually creates good and bad things. Cloud computing is a perfect example for that. There are benefits to security in the cloud and one certainly shifts in some of the security away from the end-user. One of the biggest issues with security in the cloud is that it requires an enterprise to have trust in a third party handling information and providing the services.

From an industry perspective, there is a lot of work already been done to address these issues. For instance in the security space there is a wide variety of industry forums looking at security standards and recommendations, such as the Cloud Security Alliance or the Cloud Industrial Forum.

In addition to that, in terms of consumers there is a variety of organizations that are working jointly with the government and the private sector to do things that just raise awareness and education that help consumers to better understand the threats.

We have to keep in mind that consumers really want these services. The trends are not going to stop. Both the private sector and the policy makers need to strike the right balance between providing adequate protections, so that people feel safe on the Internet, but not placing requirements that will impede the adoption of the technologies.

CHRISTA MENKE-SUEDBECK, Chief Data Protection Officer, Deutsche Bank AG, Germany, presented with great clarity, insight and inspiration how a globally acting company navigates through the day-to-day business of data privacy – or

The jungle of data privacy regulation

This year is marked by dramatic developments in the privacy sector. On one hand, there are these new technologies like social media, Facebook, cloud computing, or Street View which some welcome as the ultimate new and existing technology development and others just see as challenge and violation of their rights to privacy. People are afraid of the data they have to disclose in the Internet being gathered for data marketing and profiling purposes which is out of their reach. And they learn as well about massive data breaches as from public organizations, as from governmental bodies, as from private organizations all over the world.

On the other hand, new regulation is raising all over the world -- designed to protect the countries' own people and to enforce data privacy in that very country. At the same time, there is an increasing appetite of governmental bodies to gain access to private data in order to fight terrorism.

How can a globally acting company like Deutsche Bank navigate in such an environment? There are four main challenges: The first being very trivial: gather and categorize all privacy regulations which apply to your business. Deutsche Bank operates in about 3 000 branches in 70 countries. In all countries there are either explicit privacy regulations or any sort of regulations on data transfer and data usage -- from IT security law, via capital market regulations, up to civil and criminal law.

All countries are changing their regulations and are discussing and planning new laws. If you now decide to be a good citizen and to comply with all regulations and to always chose the strictest rule in order to ensure your compliance, you will find that this is not possible, because there are partly contradictory rules. A Data Protection Officer working in a global environment has to find a way through this jungle and be able to tailor the information for the different businesses. S/he has to decide and find solutions in order to handle contradicting regulations and to establish a framework that is easy to use within the organization just in order to facilitate the different global policies.

The second challenge is to ensure that these rules are interpreted in the right way. Because there are not only contradicting rules, but there may be important differences in interpreting what this rule means.

As an example, outside of Europe it is no problem to put employee data in a global pool for processing. For European countries, you would need explicit reasons for any data transfer outside Europe and even if you just exchange between affiliates in your group, you need back to back agreements and contracts in order to do so.

In Europe, data can only be used for the purpose they are collected for and only in very special cases for the company own purposes. Again, something that seems rather strange to non-Europeans.

In the time of social media like Facebook, a Data Protection Officer needs to specify a lot of details that seem trivial or obvious. For instance, s/he has to explain to his/her colleagues from Asia or the US, definitely in favour of a less restrictive approach, why the list of people being absent in a global organization can not carry the reasons such as maternity leave or

long-time illness. These may be silly things in the light of social media, but reality when sticking strictly to regulations.

The Data Protection Officer has to respond as well to en vogue discussions like anti-fraud measures and has to explain why it is not possible to just retrieve or monitor email traffic or any private disk or disks in the company computer for anti-fraud purposes.

This leads to the third challenge, which are “frictions” between the industry regulators’ requirements, in this case banking authorities, and data privacy authorities. For example, banking authorities request to do monitoring and analysis of employee data, special data mining, as well as keeping a sort of black lists – which, according to the data privacy regulator, may be regarded as non-compliant and violation of applicable law. At least in some areas, the Data Protection Officer has the right to balance between the interest of the company and the interest of the individual having his/her personal data protected. Of course, the same applies to requests from outside the home country or the European Union.

Besides having your data protection policy in order to really enable your global organisation and operate globally and despite the mentioned challenges, it is important to create frameworks and tools, and to set up and enforce respective contractual frameworks, automated processes and ensure that the right people are leaped in.

In order to drive compliance and accountability you need to enforce policies, contracts and tools. This is the fourth and maybe hardest challenge. In order to get that done, you have to get the understanding and acceptance from your businesses operating in the different countries. Trainings, checks, controls are nice, but it does not really help you as long as you have not explained to your main stakeholders the background of the rules and why they are set up. What is the cultural background? What are the historical reasons? By doing that, you will find acceptance and understanding.

There are always areas where one has to step back from the global approach and take a more local one. But in general, a solid and up-to-date knowledge of the different rules that apply to your business, summarized policies and frameworks that are easy to access and to use, supplemented by the necessary set of controls and supported by explaining are the elements needed to navigate in the accelerating evolvement of the global data privacy jungle.

The best service data privacy regulators could do to protect freedom of information on one hand and data of individuals on the other hand, would be to overcome local egoisms and define a regulation despite different cultural backgrounds for handling data towards global principles, detailed enough to serve as a regulation and then enforce that regulation.

STEVE PURSER, Head of the Technical Competence Department, European Network and Information Security Agency – ENISA, shared with great know-how and awareness some of the challenges related to network and information security.

The European Network and Information Security Agency was set up in 2004 and is about 60 people strong. The organization has a high level of autonomy with the objective to support Member States and the private sector in the context of network and information security. While the European Commission is more a legislative body, ENISA tends to focus on day-to-day pragmatic problems.

A statement in a previous ENISA work programme document states that " European citizens will not adopt technology if privacy and trust is not correctly handled." This is far from reality at the moment: The European consumer will adapt technology at almost any price because technology is very fashionable and people tend to see only the advantages of adoption and not the disadvantages. Getting people to recognize the importance of privacy for them in their lives is one of the key challenge we have to face.

Privacy is not the same as liability control mechanisms. It is not responsibility of engineers. Privacy by design is a good thing - but it is limited. One can not expect engineers to understand the privacy concerns of the whole community that they are serving. Similarly, we know from experience that we cannot expect users to protect their data adequately without some kind of proactive mechanisms to help them to do so.

Although in some cases there are tradeoffs in privacy and security, this is something rather overstated. Privacy and security is extremely complementary and without security there is no privacy -- because security mechanisms protect privacy in general. Thus it is possible to have a very high level of security and still have a very high level of privacy.

ENISA takes the European viewpoint that privacy is a fundamental human right. This is based on statements such as Article 8 of The European Convention on Human Rights ("Everyone has the right to respect for his private and family life, his home and his correspondence"); Article 16 of the Treaty of Lisbon ("Everyone has the right to the protection of personal data concerning them"), or Article 8 of the Charter of Fundamental Rights of the European Union ("Everyone has the right to the protection of personal data concerning him or her" [..]"Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified.")

Security and privacy should be considered as early as possible in the design process. However, it is not only a technical issue. There is a need for clear definitions and guidelines, legal frameworks and in particular best practices. It is important to align research to policy initiatives and to move research results in operational environment – while focussing on the entire picture, and not only at the application level.

Understanding the economic aspects of personal data protection and disclosure is another important issue. If we don't come up with economically efficient models, it will not be implemented. And here, all actors in the chain have to be considered!

Some areas of possible intervention are: Advocating and fostering a Pan-European approach to privacy; avoid online service providers lock-in by fostering user profile portability; and implement Data Breach Notification.

In terms of technology, there is a need to limit data pollution (e.g., minimal disclosure); limit content's lifetime (e.g., ephemeral communication); as well as to limit data leakage by design (privacy by design).

Within the framework of its 2011 work programme, ENISA has worked on security and privacy of Future Internet technologies (e.g., the Internet of Things, the large scale deployment of RFID chips). ENISA also worked on secure architectures and technologies. Security models in general are due for a big paradigm shift because they are not sufficiently scalable and not sufficiently flexible to meet today's needs.

Within the context of its work on deploying privacy and trust in operational environments, ENISA published a report on minimal disclosure and other principles supporting privacy and security requirements, a report on trust and reputation models and carried out a study on monetizing privacy.

Moreover, ENISA supports the implementation of the ePrivacy Directive of the European Commission and has activities linked to the Digital Agenda and the Future Internet Initiative.

ENISA also did a lot of work with the Commission and the Article 29 Working Group on the Privacy Impact Assessment Framework. This is a rather pragmatic methodology to assess the impact of a new technology on privacy of all concerned. It was done hand in hand with the private sector and is really engineered towards commercial requirements. From 2011 onwards, ENISA will assist companies in implementing this framework.

Within the context of the implementation of the Article 4 of the ePrivacy Directive, ENISA is working on data breach notifications is working on. In 2010, ENISA published the DBN Study "Data breach notifications in the EU". From 2011 onwards, the organization will support the implementation of Article 4 on DBN.

WILLIAM SLOAN COATS, Partner Intellectual Property, Attorney at Law, Kaye Scholer LLP, USA, [www.kayescholer.com], provided an excellent and comprehensive insight in two newly proposed laws:

PROTECT IP Act and SOPA

The Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act of 2011 ("PROTECT IP Act" or "PIPA") is a bill proposed in the U.S. Senate. The Stop Online Privacy Act of 2011 ("SOPA") is a bill proposed in the U.S. House of Representatives.

PIPA is aimed at curbing copyright infringement and trademark infringement that takes place on the Internet. The bill provides for a new cause of action against websites "dedicated to infringing activities," defined as websites that have "no significant use other than engaging in, enabling, or facilitating" copyright infringement or trademark infringement; or are "designed, operated, or marketed by its operator […], and facts or circumstances suggest is used, primarily as a means for engaging in, enabling, or facilitating" copyright infringement or trademark infringement.

PIPA allows the U.S. Department of Justice ("DOJ") to file a civil action against the registrant or owner of a non-domestic domain name, or against the non-domestic domain name itself and to obtain a court order if the site conducts business directed to U.S. residents and harms holders of U.S. IP rights. If the court order is granted, it could a) order ISPs to stop

connecting traffic to the website (blocking via DNS), b) order financial transaction providers to stop transactions to the website, c) order advertising services to stop providing advertisements to the website, and d) order search engines to stop providing links to the website.

PIPA also allows the DOJ or an IP right holder to file a civil action against the owner or registrant of a domain name, or against the domain name itself, whether foreign or domestic and to obtain a court order if the domain name is registered or assigned by a domestic registrar, or conducts business directed to U.S. residents and harms holders of U.S. IP rights. If the court order is granted, it could order financial transaction providers to stop transactions to the website or order advertising services to stop providing advertisements to the website.

Lawsuits may be filed against the domain name itself only if the plaintiff cannot, through due diligence, find a person in the U.S. that is the owner or registrant of the domain name. Notice of an *in rem* lawsuit must be sent to the postal or e-mail address that appears in the public domain registration database and to the domain name registrar.

PIPA provides for remedies to be executed by third-parties. ISPs, internet advertising providers, financial transaction providers, and search engine providers. Under PIPA, a court order can compel third-parties to take the "technically feasible" and "reasonable measures" in order to comply with the order. PIPA does not require ISPs to modify their network, software, systems, or facilities in order to comply with the order. However, PIPA does not include that exception for other third-parties, implying that they may be compelled to modify their systems in order to comply with the order.

PIPA and SOPA have received praise from rights-holder trade groups like the MPAA and the RIAA: Stopping foreign "rogue websites" cannot be accomplished through current law, PIPA provides necessary remedies to rights holders. *In rem* lawsuits are the only feasible way to shut down these websites due to U.S. jurisdictional limits. Allowing rights holders to prevent financial institutions from transacting money for "rogue websites" and preventing users from accessing those websites is the most effective tactic against those websites. The bill streamlines the process for eliminating a rogue website that simply reconstitutes itself under a new name after being shut down via the court system.

PIPA and SOPA have been criticized by trade associations that represent venture capitalists and technology companies, as well as by free speech advocates: The definition of sites "dedicated to infringing activities" is vague and overly broad. The requirements on ISPs and search engine providers would effectively remove websites from the U.S. internet, amounting to a firewall akin to China's "Great Firewall." Burdens and possible liability would be placed on third parties (e.g., search engines) meaning costly changes to infrastructure. Innovation may be stifled because small companies would be unable to defend themselves against litigation filed by large media companies.

SOPA has the same goals as PIPA and is similar in scope. SOPA also provides for the same *in rem* actions and the same remedies executed by third-parties. A few differences in SOPA: The definition of an infringing website includes websites that have taken "deliberate actions to avoid confirming a high probability" that the website is used to carry out copyright or trademark infringement. The definition of search engine is narrower and cannot encompass any website with a link to the infringing website.

DENIS GARDIN, Senior Vice-President, Head System Design Centre and CyberSecurity Customer Solutions, Cassidian an EADS Company, France, [www.cassidian.com], delivered an captivating presentation of

Cassidian Cyber Security

Environment has changed and cyber threats have become a boardroom issue. The number of attacks has dramatically increased worldwide, with the US being the No1 target. The gravity of attacks and impact on business (espionage) have reached a high level due to organized crime and nation state offensive capabilities. Cyber attacks require real time reaction. Cyber war is asymmetric by nature.

IT infrastructure is more and more open to the web, in line with the evolution of business. Offering mobile capabilities is vital but increases vulnerability. Moreover, the evolution of IT infrastructure towards cloud obviously raises the question of security. The cyberspace has become the fifth battlefield: The cyberspace has become “a new domain in warfare …just as critical to military operations as land, sea, air, and space” (William J. Lynn).

Cyber security is the set of technologies, processes and practices designed to protect organisations against dynamic threats to their information assets, networks and computing power.

Cassidian provides governments, defence, critical national infrastructures and industries with the design, construction and operation of cyber defence capabilities. The company delivers reliable high-end cyber solutions and services that meet high end mission requirements to efficiently face up to real-time ‘Advanced Persistent Cyber Threats’.

Cassidian’s offering covers the full range of cyber defence requirements: Consulting services are provided across the cyber security range, including risk analysis, governance, and forensics, but also training programmes covering issues such as threat situation awareness, information protection, testing the strength of security, cyber security policy, ...

Cassidian’s Security Operations Centre anticipates, identifies and neutralises cyber threats and attacks in real-time. It monitors a system for cyber attacks, compliance, loss of data and reputational damage. It aggregates multiple feeds of data from a variety of sources, e.g., Intrusion Detection Systems. When an attack is detected the Security Operations Centre operatives stops the breach, analyses the causes and takes appropriate remedial action.

Cassidian also provides trusted infrastructure including services – combining high end leading edge ciphering and data centre technologies with innovative solutions from trusted partners.

The company’s secure mobility is a trusted mobile infrastructure that protects communication and information. Physical and digital boundaries of a company’s infrastructure are in constant evolution and retaining a secure, protected IT infrastructure whilst working “on the move” is imperative for any business. Communication (through email, voice and SMS) is vital yet also vulnerable to exploitation. Cassidian offers scalable, economically viable and safe IT mobile infrastructure offering rapid deployment and secured reachback capabilities, as well as a solution for the encryption of communication devices. As such, secure communication is retained - wherever you might be.

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DAY 1 – AFTERNOON – PLENARY SESSION

The **moderator** of the session, **MARGOT DOR, Director Partnerships & EU Affairs, European Telecommunications Standards Institute - ETSI**, [www.etsi.org],welcomed the audience and shortly introduced the panellists. The panel starts with "framing issues": business transformation and impact on market structures and industry (counter)strategies on the one hand, and EU strategy and means to "boost" digital economy, innovation and growth on the other hand. This will be followed by 3 "cases studies" from UK, Japan, and Germany of how digital tools empower users/citizens to become producers of information, of applications, of consensus..., and how this impacts the political, economic and social space.

KONRAD VON FINCKENSTEIN, Chairman Canadian Radio Television and Telecommunications Commission - CRTC, Canada**,** brilliantly elucidated some of the challenges Canada's communications industry is facing today:

The Canadian Radio-television and Telecommunications Commission, or CRTC, oversees Canada's communications industry. The presentation addresses two major developments CRTC has been experiencing: One is the vertical integration of the industry, and the other is the explosive growth of online and mobile broadcasting, which is also known as over-the-top programming.

These developments are not unique to Canada, but CRTC's approach to them reflects the issues and priorities that have always been distinctively important in the regulation of Canadian broadcasting.

First, vertical integration. In recent years, we've seen broadcasting and communications converge into a single industry. At the same time, large-scale corporate consolidation has led to the domination of this converged industry by four large integrated companies.

These four control the whole gamut of communications services: Internet access and telephone (both landline and mobile), over-the-air television stations and cable channels, as well as TV distribution via cable and satellite.

In their capacity as broadcasters, they control program rights—including the rights to the most popular programs. In their capacity as distributors, they can deliver this content to the consumer on all the available platforms: the TV set, Internet websites and mobile devices.

It is this control by one entity of both programming and distribution services that we call vertical integration. The term also applies to control of both programming services and production companies.

From a business standpoint, this strategy of having a finger in every pie is quite logical. If a company has a presence on all platforms, it continues to benefit as consumer traffic moves

between its different platforms. And a company that owns a healthy amount of content can leverage this to its advantage when negotiating with other distributors or content owners.

The consolidation trend is a natural consequence of the digital revolution. CRTC is aware of the benefits that vertical integration will bring to a country with a small market like Canada. But it is necessary to ensure that it will also have a positive effect on innovation, competition and consumer choice.

Therefore, when CRTC reviewed the last two mega-mergers, the organization decided that it would hold a public hearing on the subject this past summer. As a result of that process, CRTC announced a new regulatory framework relating to vertical integration.

It ensures that certain key interests will be protected in the new integrated environment.

First, to protect consumers: There can be no exclusivity of television programming for new media platforms (that is, mobile devices and the Internet). Under existing Canadian regulations, programming services must be made available to all distributors. This ensures that most Canadian viewers will have access to programming that may have been acquired exclusively by the programming services. New media platforms are not regulated. However, our new framework provides that when a vertically integrated company offers a television program on its new media platforms, it must also make it available to competitors on commercially reasonable terms. This ensures, for example, that consumers are not forced to change their service provider in order to watch their favourite sports programs on a smartphone, on a tablet or over the Internet.

There is, however, an important exception. The policy specifically permits the offering of exclusive programming to Internet or mobile subscribers, as long as it was created specifically for these platforms. This is the kind of new media innovation that should be free to develop. The future lies in the new media environment and under no circumstances do CRTC want to regulate this environment or stifle new ideas.

Second, to protect both consumers and competitors, whether broadcasters or distributors, from interrupted service due to contract renegotiations, CRTC put in place a standstill rule. During renegotiations regarding distribution, broadcasters must continue to provide the service in question and distributors must continue to provide it to their subscribers, on the same terms and conditions. This rule guarantees that Canadians will not lose access to services during a contract dispute. In addition, it allows for more balanced negotiations as a small distributor cannot be deprived of an important program or service and a small broadcaster cannot lose carriage while negotiations are in progress.

Third, to protect competing distributors, CRTC instituted a no-head-start rule. Any new channel licensed by the CRTC must be made available to all distributors. This prevents a vertical integrated company from giving itself an unfair head start or first-mover advantage. If terms cannot be agreed upon at the time of the first broadcast, the competing distributor can accept the last terms offered on a provisional basis and attempt to get a better result through subsequent negotiation or arbitration, or simply decline the offer. If the competing distributor accepts the service on a provisional basis, it has to honour the provisional terms until final terms and conditions can be established through negotiations. If negotiations prove unsuccessful and either party seeks arbitration, the CRTC will decide the matter through final-offer arbitration (which is also known in our part of the world as the baseball rules). The decision of CRTC is final and binding on both parties. Neither side can walk away if it doesn't

like the terms and conditions chosen. They must live up to the terms and conditions of the chosen offer until they have been satisfied.

Finally, to protect competition, CRTC developed a code of conduct applicable to all players in the industry. Its aim is to ensure that negotiations between vertically integrated companies and others are conducted in good faith. It spells out expected standards of behaviour the CRTC will apply should it have to intervene in cases of allegation of undue preference.

CRTC considers this vertical integration policy as a building block for the future of the Canadian broadcasting industry. The aim is to offer some protection to consumers as well as to independent broadcasters and distributors, while giving the largest players the flexibility to develop new business models and reap the benefits of their integration.

A second recent trend in Canada: more and more content is migrating online and to mobile devices. This type of content is generally called over-the-top programming, or OTT, and is offered by both domestic and foreign services. In fact, when the American service Netflix wanted to expand to other countries, it used Canada as a trial market. In less than a year, Netflix has attracted over a million Canadian subscribers, a development that has Canadian broadcasters very worried.

CRTC refers to this content as over-the-top because it bypasses over-the-air television stations as well as broadcasting distribution companies, all of which are regulated. This raises a number of policy considerations for a country like Canada.

Broadcasting regulation has always been an important tool for supporting and enhancing our Canadian cultural identity. Canada live next door to the most powerful producer of television entertainment in the world. A majority of Canadians speak the same language as Americans, and they share cultural similarities. CRTC wants Canadians to have access to American shows, but the Commission doesn't want them to drown out Canadian cultural industries.

Over the years, the CRTC has established regulations to ensure that Canada and Canadians are reflected within our broadcasting system. In exchange for a licence, we require broadcasters to spend defined amounts on Canadian programming. During the evening, when most people are watching TV, at least half of the programming hours must be devoted to Canadian content. And television service providers must contribute a percentage of their revenues to funds that support the production of Canadian programming, including drama series and local news. Equally, licensed cable and satellite distributors must carry local channels and offer a preponderance of Canadian channels.

This regulated arrangement has helped sustain an industry that is capable of producing compelling programming which has found audiences at home and abroad. This contributes to Canada's economy as well as to its national identity.

So what is going to happen to Canadian content as the unregulated over-the-top sector continues to grow and attract larger audiences? The OTT services may voluntarily contribute to the promotion of Canadian content, but they are not required to do so. And they may or may not offer Canadian content. There is no obligation to do so.

So far, the CRTC has maintained a hands-off approach. After an initial review of the new media in 1999, CRTC exempted over-the-top programming services from our regulation. A second review in 2009 confirmed that this was the right approach, and the Commission

decided to continue it. Neither the case for regulatory intervention nor the means of how it could be done was made during these proceedings.

This year, with the environment changing very quickly, CRTC launched a fact-gathering exercise to get a clearer picture. Are new forms of broadcasting an extension of the Canadian broadcasting system? Or are consumers beginning to abandon the regulated system in favour of unregulated alternatives?

The answers provided by the fact-finding mission turned out to be inconclusive. The responses suggest that: The regulated broadcasting system continues to support Canadian programming, as it has always done. There was no concrete evidence that Canadians are abandoning the regulated system by reducing or cancelling their television services. New technologies and service providers are creating opportunities for Canadian content creators and businesses in a global marketplace. At the same time, these trends are casting a shadow of uncertainty over established business models and the strategies we've traditionally relied upon to support the creation of Canadian content.

Judging from the varied submissions, no one really knows how OTT will evolve. Canada's cultural industry, however, is clearly concerned, one could even call it traumatized, and calling for drastic action. What action is not clear at this point, nor how it could be enforced. Making OTT in any form subject to our regulation might merely drive it offshore.

CRTC has therefore decided to make over-the-top services the focus of its annual consultations with the broadcasting industry later this month. Rather than fighting this trend or trying to regulate it, CRTC wants to focus on the opportunities it provides for both Canadian viewers and broadcasters. The risks to the existing system are evident, but there are enormous opportunities for Canadian content to reach the whole world.

The CRTC has the mandate to encourage the production of Canadian content. This was easy to accomplish through regulatory conditions when CRTC had the ability to control access to the broadcasting system. But then along came the Internet and its global reach. It has put the consumer in the driver's seat—ready, willing and able to go anywhere because the Internet has no gatekeepers.

Some of CRTC's challenges for the future are: How does CRTC promote Canadian programming in the digital environment? Should the agency continue to support its production or should it focus on its promotion? How to ensure that the environment provides the maximum benefit to Canadians?

KEN DUCATEL, Head of Unit, Digital Agenda: Policy Co-ordination, DG INFSO, European Commission, delivered a very clear and concise talk about the role of the ICT part of the economy in terms of generating growth in Europe.

Digital Growth

Referring to a presentation made by President Barroso to the European Council in October this year, the question which is facing us mostly at the moment is the fact that we have a macro-economic stability crisis -- but underlying all this is a problem of our capacity to growth. We have actually lost a large amount of where we should be in the recent crisis since 2008. We have lost about 2000 billion EUR between 2007 – 2010 due to the crisis.

In European terms it is clear that if we want to catch up, we have to focus on our growth factors. The things in our economy that we can do to stimulate more growth than we would normally have. And on a macroeconomic level, we should try to catch up some of the gaps we see between ourselves and our big comparator in economic terms, which is the US.

There is a persistent one-third income gap between the EU and the US. Between 2000 and 2010 we saw some catch-up, but not as much as we would like. We are about 65% of where the US is. Our productivity has gone down over time and this is clearly something where we would like to see some gains. In terms of number of hours worked: close but not working as many hours and not so many people in employment providing a productive input to the economy as the US. These are some factors which can generate growth.

What Mr Barroso pointed to in his conclusions to the Heads of States and Governments in the EU, was that we have to do three things:

First, implement fully what has already been agreed on and which could drive growth forward, in particular in European context, these are things like implementing fully the services directive; making sure things like consumer rights directive which allows for more confidence in cross-border markets in order to generate getting befits from the single market; implementing fully the e-Communications framework; and working on e-Payments structures.

Second, accelerate the pipeline of new decisions which can improve growth, such as work on patents, the new proposals around common sales law and standardisation procedures, the spectrum policy proposals to create space in particular for wireless broadband, and the connecting Europe facility.

Third, launch ambitious proposals around collective rights management/ digital content, e-Commerce, e-Procurement, open data, cloud computing etc.

These are all things that we can do to generate growth and these are all areas which can be found in the Digital Agenda, the European Framework of action for promoting both societal development and economic growth.

Adopted in May 2010, the Digital Agenda is based upon a 'virtuous cycle of the digital economy' model. It is about the action in order to increase the offer of content and borderless services, generating benefits from having a real single market, which is adapted to the digital economy. This would increase the level of demand and that would then generate demand for high-speed services. That creates a virtuous cycle which would help generating the kind of growth that Europe needs in order to catch up after the economic downturn of the last 4 years.

Europe encounters a lack of investments in networks, lack of interoperability. This is why we think attention to some of the key factors here is so important. The basic networks which are necessary to get to the next round of digital growth factors are very important. We see that broadband quality (speed) but also symmetry of services will become increasingly important as firms move towards using cloud computing services, consumers move towards using cloud computing and as we increasingly use things like HD videoconferencing, large scale file sharing etc. There is a need for investment in the basic infrastructures.

Moreover, Europe has this problem of the fragmented situation in terms of digital content markets. It is difficult to provide digital content EU wide, because it is difficult to manage to clear all the rights needed to on order to do so. Europe is running a long way behind the US in terms of the amount of consumers spend on legal content per capita. A large part of this is due to the fact that simply the material is not available because of this fragmented market offer.

It is very important that high level policy makers keep these kinds of factors in view. If we make a comparison to the South Korean situation – the economic miracle, where they have decided over a very long and consistent period to prioritze ICT as part of their growth factors, we see serious and fundamental breakthroughs where Korea is ahead of the game, making important bets in terms of the new developments which are going to drive change. And we also see a steady climb of the income per capita.

It might be difficult to read off a direct correlation, but brave and forward looking policy decision making around growth factors is surely part of what we should be doing in order to get ourselves out of the stagflation that we are currently confronting.

Let us agree to boost growth and jobs. And we need to do that in Europe in particular by tearing down the barriers to the single market, making them adapted for the digital economy and creating through that all sources of new trade opportunities, because Europe is not the only place where we need to generate growth relations.

We need to do this in particular by helping SMEs to grow in this new digital environment by creating a single market using venture capital funding and smart regulation. And we need to use the instruments we have got. It is still the case that structural funds in Europe are underused: In the ICT area only 40% of the ICT related structural funds are today committed to projects. This is money which is available and which can help to develop growth potential.

To that end, the European Commission is elaborating a clear roadmap of where we go next for the December European Council.

EIKAZU NIWANO, Producer R&D Planning Department, NTT Corporation, Japan, provided a most impressive presentation on

Through the experience of Great East Japan – Earthquake/Tsunami 3.11
Social Information Infrastructure and eGovernment for Basic Citizen Life

In Japan a very big earthquake happened on March 11 this year. The disaster disrupted power supply and caused enormous damage in the Japanese telecommunications infrastructure.

More concretely spoken, this included the destruction of telecom buildings (complete collapse: 18 buildings), collapse of a telephone pole (about 65 000 in the area along the shore), transmission line switchboard outflow (90 routes of a relay transmission line), and collapse of 375 mobile telecom stations.

The amount affected in the 2010 fiscal year in the NTT Group consolidated accounts including other group companies is about 250 000 euro (profit and loss) .

1.5 million fixed lines were affected by the disaster. NTT carried out the restoration works of fixed and mobile services by sending out more than 10 000 of its people. Further relief was given trough its mobile power supply car and an independent electronic power plant. Restoration of equipment was carried out by means of detour of transmission route etc. At the end of March, 93% of the affected lines has been recovered. At the end of April, almost all of the affected telecom equipment has been recovered.

NTT undertook a number of efforts to support victims. As regards the provision of communication means: Installation of 3 900 specifically prepared public phones by using portable satellite telecom equipment etc., provision of free satellite mobile phones (900) and mobile phones (2 100), installation of 410 free Internet corners, provision of Internet via tablet terminal (670), and the installation of 410 free charge corners.

NTT also provided ICT based support, such as NTT's gratis offer of the map information and aerial photograph before and after suffering a calamity to the government; the implementation of remote health consultation by a gratis offer of TV telephone to a refuge; the gratis offer of the multicasting services from a school to parents and guardians.

In the context of NTT's fundamental view towards future countermeasures, one has to note that the company made efforts to protect its network against disaster since many years. However, in this earthquake in Eastern Japan, communication equipment was subject to the unprecedented following matters, and diversification of the information connection means became to be remarkable: The occurrence of the 4th world observed super-massive earthquake with tsunami and aftershocks. Serious damage was caused by the tsunami. Entry to the area was impossible because of huge heap of rubble, road cutting into pieces, etc. for a long period of time. Moreover, a wide area and prolonged power failure (almost the whole Tohoku region and Kanto bloc with more than 7 million households in Kanto region). Another reason was the implementation of the scheduled blackouts in metropolitan area.

As a result, the company has to redefine its future countermeasures. The first countermeasure is the provision of a strong network in order to avoid its disconnection. The second countermeasure is to ensure early communication means for a local relief base, such

a city hall or refuge building. Third, to assure the information sharing means after suffering a calamity to avoid network congestion. And finally, to offer the service and solution which is useful at the time of a disaster and revival.

In order to realise these countermeasures, collaboration with the local and central government is important.

Finally, NTT proposes an e-Government model for a basic citizen life that relies on the four aspects “connect” (government, enterprises, citizen and public entities) – “individual” – “community” – “safety”.

In order to realize this vision, strong and flexible networks are needed as well as an information integration platform for information sharing. On top of this, applications, such as e-Health, education environment, disaster prevention etc. have to be considered.

ELEANOR STEWART, Head of Digital Engagement, Government Digital Service Cabinet Office, The United-Kingdom, delivered a most illuminating presentation on what has been done in terms of citizen engagement within the UK.

Digital Engagement: Saviour or Jargon

Digital engagement is engagement – the same as you would engage on any other level with citizens and the public through different channels, but because of the Internet and technology and the greater connectivity it is much faster and more meaningful, and should create better outcomes for users and for governments.

It is not requiring lots of money. In the UK, it has been integrated into a lot of the ongoing work that was happening elsewhere within UK government departments and its service provision. Digital engagement is not some magic area split from the rest of communications -- it is part of the core effort of government in dealing with citizens at a local and a central level. It covers all aspects of communications from customer service to brand management to traditional media activities (“press office”) etc.

For lots of people in the UK, interacting with the government is intimidating and particularly scary. By using the Internet and digital technologies, the UK government tried to make government more accountable, approachable and understandable. A lot of that has been through the open data imitative and transparency agenda that is been going on. Moreover, digital channels started to be used to support customer service and to provide transactional services.

Citizens have been asked to use the Internet in terms of policy formulation in order to support engagement of citizens and empowerment, helping them engage with government, but also to inform citizens of their rights.

e-Petitions have been relaunched. There was an existing e-Petition system, where people could register, but this was not really a success. Thus, e-Petitions have been relaunched enabling direct appeals from the people to the Parliament. Citizens can now initiate a form of debate in the Parliament if a petition gets more than 100 000 signatures. The initiative has been launched in August this year and the first 3 debates in Parliament already took place in October. This is surely something that will happen in Europe more widely in the next couple of months.

Consultations have been a very big area, enabling to consult with the public on different policy initiatives. It is actually something very structured and informed, depending on the audience reached. For instance, there was an open data consultation which finished last week. It was a great success with worldwide commenting on the policy and strategy of the UK's open data initiative.

The idea was not to reinvent everything, but to use the tools citizens are already using. For instance, the Staffordshire Police managed to use a combination of Twitter, Facebook and Foursquare to calm fears during the riots this Summer. This has been very successful and is a completely new way for governments to interact with their citizens. Social media technology is a powerful tool especially in emergency situations. Governments could use this social media technology a lot more as a means of getting messages out, but also in terms of keeping citizens informed.

The UK's open data initiative has been extremely successful, especially in the context of engagement. data.gov.uk is not just a site – it is engaging with audiences online and offline: unconferences, mailing lists, hack days, wikis, Social Media Week and more.

JIMMY SCHULZ, Member of the German Parliament, Germany, brilliantly described

Positions to Democracy 2.0 –
How to Participate in the Information Society

Innovative methods, which would allow citizens to better participate in the political process are largely available. They have however to a large extent not yet been implemented. Digital progress has led to new, creative methods of political participation and integration opportunities for citizens. If these opportunities remain ignored, and new forms of participation are not established, representative democracy will continue to lose credibility. Mass demonstrations and public-opinion polls are evidence of citizens' dissatisfaction with politics and demonstrate that many current political structures are outdated. The demands of a changing society need to be taken seriously and acted upon: a new digital culture of participation needs to be established.

The aim is to develop a digital culture of participation, with innovative, digital elements and openness to new creative concepts. This is an important opportunity to renew the information, communication and participation process between citizens and politics. Three steps should be considered when discussing new forms of participation:

1. Citizens feel inadequately informed. The large amount of information provided, which cannot be processed by citizens, is as problematic as too little or inconsistent information. Improved transparency can help prevent discontent.

2. There is insufficient „real dialogue". Citizens expect a dialogue with their politician, to obtain the opportunity to explain and discuss their issues and influence politicians' opinions and decisions. Dialogue can prevent citizens' desire to vote separately on specific issues (i.e a referendum). Dialogue generates understanding, especially for political decisions.

3. The possibility to vote on specific issues exists in Germany in various forms (referendum and petition for a referendum in the federal states). This is however often not sufficient. If the

steps “information” and “dialogue” prove inadequate, then as a last resort the individual should be able to decide by voting.

Communication does not end after the elections. Rather it is vital in forming a powerful and active democracy. The classical methods of external communication, such as information desks before elections, citizen consultations or other public events are important but not sufficient. Also here we need to implement innovative concepts which can be used as an interface between citizens and politics. Existing interfaces are for example websites or social media applications - Twitter allows real time communication with “Followers”. Innovative developments in the digital world, constantly provide for opportunities. These should be used in order to improve communication with citizens. Another example is the website: www.demokratie.de, used by the enquiry committee “Internet and Digital society” in the German Parliament. Citizens use this platform to discuss their proposals, first amongst each other and then form majority opinions. The proposals are then integrated into the work of the project groups of the committee. This process is technically supported by the software “adhocracy”, which is a software based on the theory of liquid democracy.

The advancement of digital technology can enrich democracy by allowing more participation. It is therefore important for parliaments to adapt and adjust to the new aspects of the Information Society. The digital society offers the opportunity to obtain easy and quick access to documents. Expanding e-Government solutions extensively is essential. Barrier-free access to all public documents online, as well as transparent information by the public authorities is also extremely important. A large number of documents available online can lead to confusion. Providing documents demands a certain amount of responsibility, and help should be provided by the state where necessary. Communication is not successful unless everyone is adequately in-formed.

Democracy 2.0 provides many opportunities and has differing effects on the various aspects of political and social participation. An active participation culture is desired and should be developed by all governments. Digitalization allows for improved citizen participation in the following three areas: Transparency of information and clarification, profound dialogue, and last but not least direct influence on the decision-making process by vote.

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Q&A

In 2009, the Obama Administration having won the election with social media came to power and decided to try social media on the American public. They launched a big site to ask the American public for policy ideas. There where a million policy ideas a minute by over 190 000 Americans, but the number one policy idea submitted was the legalisation of Marihuana. By embarrassment this was swiped under the rug. And just this year, the Obaman Administration decided again to try to do some social media policy advice. And again, the number one request from the public was the legalisation of Marihuana. This traces the question, what do the politicians do when the public wants something the politicians are unwilling to deliver. If you ask for it and the public tells you what they want and you do not want to give it, what is the point of the process?

Jimmy Schulz answered that there might be two problems: First of all, there might be something wrong with the government if they do not accept discussions like that. Second, of course there might be discussions that are much more delicate than legalising Marihuana. In Germany for instance the death penalty is one of these discussions that would not be allowed, because the government is strongly against the death penalty, even if there might someday be a majority in society who accepts it. There have to be borders that will not be crossed in these discussions. Of course, when having discussions publicly opened for a Committee of Internet and Digital Society this is quite easy to do so. Mr Schulz pointed to the fact that there might be discussions that will not be allowed – experience will show.

A reply from the audience pointed out that the obvious thing to do is to debate it in parliament, as done in the UK. That is the democratically elected representative body. Anybody can come with crazy ideas, but then, it has to be debated. That is the way to go. Governments have to open up and have to deal with it. We are not talking of direct democracy here, therefore any group can put their ideas in, but then it has to be debated by the elected representative body. And that is fine, there should not be a problem.

In the international space, when talking about Internet governance there is always this qualification of stakeholder groups, like governments, civil society, the private sector, international organisations. Generally speaking, when we speak about governments or countries, we tend to involve only the executive branch. How does a parliamentarian see the role of parliamentarians who are supposed to basically represent the sovereign people participate in international processes, such as the Nairobi IGF meeting.

Mr Schulz confirmed that it is important to be more involved in all those international processes. This has to be done transparently so that all of society can participate in the parliament's work.

Another question addressed to Mr Schulz concerned crowd sourcing. The questioner asked what happens with the collected data. They are used in the moment they are collected, but what happens with these data in the future? How to harness and learn from it? This question was complemented by another one, asking for what happens between the moment of crowd sourcing and the moment of decision-making of the Parliament.

Mr Schulz explained that in the mentioned example of the Commission for Internet and Digital Society, the parliament sets the issues and then the public can discuss these issues. The most voted topic or paper will then go back into the Commission and will be discussed there. Maybe something will be altered or changed, but the Commission will take up the ideas or even the entire paper. As this is something rather new, there is not yet a definitive way of doing things, but in the past the original paper was put in the appendix and the ideas the parliament liked and voted for were put in the paper. However, this process is currently being experimented with and there might be better ways to proceed.

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Governments and Global Single Market:
Opportunities, challenges and threats of an increased interoperability between states

The session's **chair**, **ISABELLA CHIODI, Vice President, IBM EU Unit, Office of the Chairman EMEA, IBM**, [www.ibm.com], welcomed the participants and accentuated the interdisciplinarity of this session with different initiatives from the public and private sector moving to wards the objective of a single market – a single market for citizens, for goods and for services. It is a collective responsibility to move towards such level of collaboration. Putting together different initiatives will help to get a better understanding of what each of us – citizens, employees, private or public companies -- has to do to make it happen.

Some words to put this session in a wider perspective: It is about the digital future. The world is changing so rapidly that understanding how to move towards the future is extremely challenging. It is difficult because too much is changing at a greater velocity and unpredictability. A lot is unknown. However, what we know are certain forces that are already shaping the future. These forces will alter the role of institutions and will change the way we make value, regardless we are employees, citizens, countries or cities.

The first is the global integration. We have never been more interconnected than today – economically, socially, technologically. We can look at the world as a system of systems: systems of transportations, energy, communication and finance, food and water are also systems acting at a global level.

The second force is the digital network technology. Here, people immediately think about smartphones, tablets, Facebook or Twitter, but those things only make a lot of sense because they are all part of a broader system. So, being part of a system is again extremely important.

The planet is becoming pervasively instrumented and interconnected with computation infused in things we have never thought to call computers. All this produces a vast store of information. The new resource of the 21st century is the information. And there is a lot of it! Managing information in a smart way requires new business models, new means, new policies.

In the next decades, we will reach the level of 35 zettabytes (1 ZB = 10^{21} bytes). This is an enormous amount of data that, with advanced computation and analytics, can really help us represent the world in a completely different way. It will allow us to have different insight and foresight but also to make completely different decisions.

Due to these two forces, global integration and digital network technologies, a third force is coming up: new expectations by people, because all this is shifting power in the hands of people.

People, information, and capital are flowing around the world. In the hyper-competitive 21st century the winner will be the one who will attract them – attract the talents, the capital and the future facing capabilities. The question is, what will cause that flow of resources to come to me – me being an enterprise or the European market. What makes Europe an attractive market? The answer is already on the table: For Europe, fully exploiting the scale of talents, the scale of resources existing in every single Member State is the recipe to become the most attractive place -- where ideas, capital and knowledge can really be exchanged and where people can move while being sure that their rights are protected and security is managed.

However, there are still a lot of questions. A lot has been done and a lot will be done in order to protect the rights of the citizens and enterprises to ensure an increased level of collaboration between governments. But it is not enough to just establish the rights. The question is " is it attractive and easy enough today for European citizens to decide to exercise their rights when they move to another Member State? " Things happen when they are easy, attractive and sustainable. Do individuals feel protected wherever they are in Europe? Do they feel their privacy is preserved? Is it happening without preventing the useful utilisation of the data that we need to cross the boarders? And -- are European citizens really fully aware of their rights?

Government are doing a lot and projects like the ones presented today and driven by the European Commission have an added value because they force the rationalisation and the simplification of the domestic construct of the social security systems. In return, an increased collaboration amongst social institutions will help to fight fraud and abuse much more effectively.

Another aspect the session hopes to cover is consumers. A single market for consumers means greater choice and lower prices due to higher competition. However, international transactions are still low. What do we need to facilitate cross-border transactions? Governments are doing their part. If we think about projects like Peppol, they are also setting the standards, helping to envisage where we should be. Peppol is about Pan European procurement for public administrations. It is about having a single market for public administrations. The question is: is this enough working on these standards for eProcurement in Europe? What do we need more to make it happen to become a real pervasive reality there?

When looking at a single market, we need to consider not only the positive aspects, because crime and cyber-terrorism are by definition international and they require cross-national collaboration. They can thread our lives but we have also the means for fighting them if the huge amount of data are shared properly among institutions.

Of course, this new reality requires new policies, new approaches, new organization. We need to move from a collection of states to an integrated ecosystem. The prerequisite for moving there is a higher level of interoperability. Interoperability has different layers: Interoperability is needed at the political level to harmonize legislations, at an operational level to reach operation coherence across the Member States, at the semantic level and the technical level. All together they can make the difference and address all the mentioned issues of a single market.

THIERRY LEMERLE, Deputy Director General of Pôle Emploi, France, provided a very clear and concise presentation of Pôle Emploi's system of risk and internal control, fraud prevention and the need for national and international information exchange.

Pôle Emploi is the result of a merger between the French employment Agency "ANPE" and the French unemployment benefits Office "Assédic". Pôle emploi registers and updates the lists of job seekers, informs, advises and guides the unemployed in their training and job search, brings nearer employment offers and demands, pays unemployment benefits, provides support for job seekers and assistance to companies in their recruitment efforts as well as the establishment of unemployment statistics.

Pôle Emploi is structured in the following way: 1 national authority, 26 local authorities (corresponding to the 26 French regions), 1 centralized authority and 1 centralized IT Department. There is also one executive in charge of quality, risk control and internal control, fraud, and sustainable development.

Pôle Emploi is managed by a tripartite Board including the representatives of the social partners and the representatives of the government. Pôle Emploi registers about 7 million job seekers and pays out almost 37 billion EUR each year.

In order to set up the system for internal control and risk management, Pôle Emploi started with describing its requirements in terms of service quality and then followed a process model corresponding to ISO 9000. The system takes into account customer surveys, internal control mechanisms (600 to 700 controls each year in order to verify the good quality of the operations), sustainable development and fraud control.

The system for internal control and risk management is composed of a certain number of topics. Of course, the activities and processes of Pôle Emploi are at the centre, but there are also financial controls, internal controls, automatic controls, as well as fraud prevention and security measures.

The system is based on risk mapping. Given that there are 26 regions and one national level, there is a rather large amount of risk maps and process descriptions corresponding to the ISO 9000 standards.

In order to prevent and fight fraud, Pôle Emploi works on the detection and evaluation of fraud, followed by case management, but also on risk documentation. One area of particular importance in the context of fraud prevention and risk management is the national and international exchange of data and information. On an EU level, two new regulations have replaced the old ones since May 2010. However, the scope of these new directives (EESSI) is limited to 27 Member States and do not apply for the moment for Switzerland, Norway, Iceland, and Liechtenstein. For these countries the old rules are still applied

As regards unemployment, there are three key rules: all periods of contributions in the EU are used to calculate the affiliation and the benefits. There is the possibility of maintaining services in another Member State for 3 even up to 6 months. There are specific rules for frontier workers.

Someone who has worked in the UK and in Greece and registers in France without ever having worked in France, is not entitled to unemployment benefits in France. In this case, the aggregation principle does not apply. Someone who has worked in Cyprus, who has worked in Austria and who has worked in France at least one day, is entitled to unemployment

benefits in France. In this case, the aggregation principle does apply. However, precondition for the efficient functioning of such a system is a harmonized data and information exchange.

JACKIE MORIN, Head of Unit in charge of Coordination of Social Security Schemes and Free Movement of Workers, DG Employment, Social Affairs & Inclusion, European Commission, gave a detailed and passionate discussion on regulatory aspects related to the free movement of workers:

Free movement of workers is one of the pillars of the European Single Market. It is the most contested and at the same time the least used of the four freedoms. When asking citizens whether mobility is a good thing for Europe, 66% of the citizens answer "yes". However, it seems that citizens think that it is a good thing for others, because when being asked if mobility a good thing for them, only 33% answer "yes".

There is today in Europe still a huge potential for mobility. Only 2.5% of EU citizens are living in another Member State. This increased quite a lot during the last 10 years, 10 years ago it was 1.6%. 10% have already worked in another Member State. 28% would consider doing so in the future but 15% would not because of too many obstacles and 53% because 'not interested'. Furthermore, there is also a huge potential for a temporary stay in another Member State. Currently 38% of the European citizens have European Health Insurance Cards.

As regards interoperability, there is a sort of conflict between two elements: On one hand, there are strong rules at the EU level (e.g. Article 45 of the Treaty "Freedom of movement for workers shall be secured within the Union"; or Article 48 "EP and council shall adopt measures in the field of social security which are necessary to provide freedom of movement for workers"). On the other hand, the social security systems are very different and of full national competence. This means that it is up to the Member States to decide who is ensured, what are the benefits and what are the entitlement conditions.

Reconciliation can only be achieved through regulations. There are currently two regulations in the EU: One concerning free movement of workers (the right to work in any other EU Member State, equal treatment, prohibition of obstacles to free movement) and one concerning the coordination of social security for insured persons (equal treatment, one applicable legislation, aggregation of periods of insurance, export of cash benefits). These principles apply on the top of the different national realities.

If, for instance, someone from Portugal will go to the UK to work, she/he will be ensured in the UK for all social security purposes (equal treatment). His/her pension rights will be aggregated. Another example: someone from Germany is going to Spain for pension. His or her pension will be paid by Germany. Health care will be provided by Spain (with German reimbursement). If someone from Poland is going to France for work, the family benefits will be paid by France to his or her family in Poland.

There is a need for electronic information exchange -- a need to create an efficient system of cooperation between high number of actors dealing with different systems. The constraints are that it should be easy and simple for citizens and secure and efficient for institutions. More than 15 000 institutions will be connected through access points (around 70) to a network called EESSI (Electronic Exchange of Social Security Information), exchanging more than 15 million messages per year. The idea is not to harmonize the systems, but to bridge them.

Interoperability is only the first step. Connecting national electronic environments should improve continuity. Improved performance via electronic exchange will reduce delays. Moreover it will be possible to measure efficiency, to better control fraud and errors and to foster further developments, such as e-EHIC or e-Portable forms.

JULIA GLIDDEN, Managing Director, 21c Consultancy, United-Kingdom, brilliantly and with great incentive spoke on the challenge of cross-border mobility:

Cross Border Mobility: Challenges and Opportunities for EU Citizens

The presentation is about a European project that falls under the CIP Smart City initiative and that is aiming to provide a service infrastructure to facilitate these initiatives from a very much citizen centric perspective.

It is worth reiterating the potential of a single market: It is the key driver for the integration of Europe and it is the key hope to overcome some of the dire economic conditions and challenges that we are facing. According to estimations of the European Commission, the potential of the single market is to create 2,5 million new jobs and to generate 877 million EUR in just the next ten years alone.

But the Commission itself knows that there is a number of challenges particularly with regards to the single market and worker mobility. To that end it has deployed in 2012 a number of initiative instruments that all look at issues such as SME finance, trans-European networks, taxation and in particular the mobility of workers. The discussion today is going to look at the ways in which certain initiatives can help us capitalize on the opportunity of worker mobility. The opportunity is not just in terms of the numbers mentioned above, but also to face the real challenges in terms of genuine economic growth, competitiveness and social innovation. That is, you have to be able to have your talent flow to where your talent is needed. The talk should not only be about things like brain drains, but also about brain gains. In a Europe with aging demographic challenges and a large number of highly qualified posts that remain vacant due to a skills shortage, the mobility of workers becomes a key ingredient to realize the potential of a single market.

The US has a mobility culture. 32% of Americans have lived in different states, only 4% of the Europeans have lived in other Member States. The US is a federated system and there is much more interoperability – a model Europe should work towards. There is a need to put a greater emphasis on ease. Ease is the key. Making it easer for citizens to move, to work and to relocate.

The EPIC project is predicated on the belief that providing one stop government, providing a service infrastructure in one portal where citizens can access what they need in order to relocate easily and effectively, is the key to success.

The EPIC project is part of the Smart City portfolio and it is predicated on the belief that smart cities need to be able to harness the innovative talent of SMEs and citizens from across Europe. It needs to be able at the same time to share their innovations and their creative business processes with cities and regions across Europe, but most of all it is predicated on the belief that to be truly smart, European cities and regions need to provide their citizens with the service infrastructure that can deliver one stop government, a service infrastructure that can allow for the integration of services, the interoperability of systems,

and that can deliver actionable real-time intelligence and service delivery. That is a very high challenge for a European project. The project is working closely with IBM to meet this challenge.

Relocation services were chosen as one of the pilots of the EPIC project. Relocating is one of the most complex transactions you can have – even in the US moving between one State to another is highly complex, but when adding complexities like the need for point-to-point contact between Member States, the need for national systems to coordinate at a EU level, it can become literally overwhelming for the citizen.

The platform itself needs the cross-border collaboration to provide a single point of contact for multiple channels, multiple agencies and multiple organisations across Europe to work together and to enable growth, drive social innovation and hopefully to get out of the dire economic situation that we are facing.

EESSI (Electronic Exchange of Social Security Information) is a great starting point. It is a necessary precondition, but it is not the only precondition, because right now EESSI is point-to-point between Member States, so it is the necessary condition to make it easer for the administrators to talk to each others. But if we really want to deliver one stop eGovernment services at a European level, a project like EPIC will need to be able to access the standard integrated business documents that EESSI has already defined. At the same time EESSI will need to be able to take advantage of the value added services that a project like EPIC is creating, such as business processes and actionable business intelligence.

A lot has been done in terms of the European interoperability framework. A lot of great work is happening at the Member State level and a lot of very important ground-work is happening at the EU level, but it is not a question anymore even of legal or technical interoperability, it is a major cultural challenge. We live in a low mobility culture and then we make it really very hard for people to overcome those embedded obstacles that they have culturally. It becomes a chicken-or-egg question: Do we change the culture and that would drive the change of legal and technical and interoperability barriers or if we change these barriers can we help drive the culture so that we can truly take advantage of the opportunities of the single market.

During the following **Q&A**, the question raised whether to develop such broad services requires collaboration not only with public entities but also with private companies.

In her answer, **Julia Glidden** stressed that as a Smart City CIP project, EPIC is embedded in the believe that citizens and SMEs working collaboratively with governments will be the best drivers for competitiveness and innovation. So if you create a platform like EPIC which is cloud based and will allow SME innovation to be shared and sold across Europe and citizen innovation to be shared and sometimes sold across Europe and used by governments you get the best type of working partnership and the best chances for innovation and growth. Because who better to know the challenges of citizens moving than citizens. Who better to know the challenges of an SME wishing to sell across Europe than the SME themselves. It is predicated on the belief that the public administrations do not always know better and sometimes working in partnership with the citizens and SMEs we can derive the best solutions.

ALEXANDER VON CAMPENHAUSEN, Coordinator, SOLVIT Team, Task Force Single Market Assistance Services SMAS, DG Internal Market and Services, European Commission,

The EU Single Market and Supporting Networks

There are four main problems: First, there is an information gap, people do not know about the possibilities and their rights or who to address. There is a huge need for information. Second, people often have wrong expectations, e.g. on the reality in other countries, on their rights, on potential possibilities or obstacles. Third, if people really decide to profit from the single market and to move around, they sometimes realise the bad cooperation between their home countries and the countries they are going to. Information flow is sometimes slowed down. The EC is working hard to address this issue. Finally, there are cases of wrong application of rules. In the case that rules exist they might not be correctly applied.

DG Market is monitoring what the Member States do to implement the legislation where harmonization exists. This is published in the Internal Markets Scoreboard. DG Market also informs and advises people via a the portal “Your Europe”. There are some ways to speed up formalities, e.g. for the Service Directive. Furthermore, there is the internal market information system for the exchange of information and if problems occur there is a system called SOLVIT.

Your Europe is a simple web page where people can look for information. There is an area for citizens and one for companies. The main purpose is to give information on all kinds of single market rights, to make it user centred and to make it understandable. Not to use legal terms but rather practical terms to provide the information in a language which is understandable for everybody. Your Europe is provided in all EU languages. Unlike the US, the EU has a whole bunch of different languages and it is one of the key impediments for mobility the fact that in other countries people often speak other languages. Your Europe not only provides information on EU rules but also offers information on national rules and procedures in some areas, e.g. the qualification of nurses. The portal also provides direct access to further help, such as national contact points, Your Europe Advice or SOLVIT. Your Europe is currently receiving about 140 000 request per month, but the number is constantly growing.

Your Europe Advice is a network of local lawyers offering free personalized legal advice on EU rights, within 1 week. In 2010, Your Europe Advice gave about 40 000 advises to citizens and enterprises who needed personalized answers.

The Internal Market Information (IMI) System is a web-based tool for information exchange between public authorities at all levels. There are currently more than 6 500 authorities registered and 200 requests per month. IMI is provided in the 23 official EU languages and currently used for professional qualifications, services and posting of workers. It is easy to reach, there are no formalities except the one, that people have to be connected to the network. IMI is a tool that really facilitates the work of authorities who have to cooperate with authorities in other Member States.

SOLVIT provides help to people who experience problems. Citizens or a companies experiencing a problem in another Member State are often discouraged. If they face another authority in another Member State they are often not familiar with the legal system, they are not familiar with the authorities and they are not familiar with the organization. They can address their own national SOLVIT centre and their national SOLVIT centre will address the problem to the SOLVIT centre where the problem occurs and they will address the authority

causing the problem. SOLVIT is open for citizens and businesses. It is strictly limited to EU law and problems caused by authorities. SOLVIT has a success rate of 80%. For citizens key problem areas remain social security, professional qualification and residence rights. For companies, the key problems are free movement of services, free movement of goods and taxation problems in other countries.

KEN DUCATEL, Head of Unit, Digital Agenda: Policy Co-ordination, DG INFSO, European Commission, provided eloquently a most interesting insight into the Commission's perspective of

Opportunities of the EU Single Market

There is an enormous potential for growth through the single market in Europe. As President Barroso stressed in his presentation to the European Council in October 2011, completing the single market would significantly boost growth. Specific EU level reform measures are estimated to add about 3% to the GDP level in 2020 – which is really significant when looking at the growth levels we have in the economy today.

The fragmentation of the European digital content markets means that in Europe the value of these markets is much much less than it would be for legal content if we had a single market.

As regards eProcurement, there are two problems in Europe: The first one is that Europe is pretty much behind the curve in terms of the actual use of eProcurement – eProcurement being much more efficient than traditional procurement. Second, there is an enormous difference in distribution, from the leaders to the laggards there is a big gap and when it comes to the cross border use of these service it is almost zero.

Today, online eCommerce is very low. Only 40% of Europeans shop online and this is heavily concentrating in a few Member States. Only about 9% of Europeans are shopping cross-border. 60% of cross-border Internet shopping orders fail due to technical or legal reasons. Here again, there is an enormous benefits potential for European consumers in terms of prices, in terms of access to a range of choices that they do not have today.

The digital single market therefore represents an enormous opportunity for Europe to solve some of its growth problems. If we can have a single market for access to early stage capital, it would perhaps possible to close the gap on the US, where venture capital in 2009 was 3x times higher EU as % of GDP.

It would be possible to close the gap between the 40% of EU citizens who buy online in their own country and the 9% who buy online across borders. Globally, 8 trillion USD in goods and services are traded over the Internet each year.

Digital copyright regime change to benefit creators and consumers. A modernized copyright management could add between 0.3% and 0.6% to annual GDP growth.

If we could make public data freely available: the EU market in public sector information was 28 billion EUR in 2008. Low cost measures to open it could generate 40 billion EUR per year, with indirect impacts adding 100 billion EUR.

Making the EU cloud-friendly could generate over 763 billion EUR of cumulative economic benefits between 2010 and 2015, creating 400 000 jobs per year.

ALAN SHARK, Executive Director, Public Technology Institute - PTI; Assistant Professor, Rutgers University School of Public Affairs & Administration, USA, delivered a most stimulating and well received presentation on

Understanding Digital Boundaries

The US already has one single market -- with 40 000 problems. If Facebook was a nation, it would be the third largest country in the world. If Facebook was a nation, it would have the double of the population of the US. Last quarter it was announced that in the US there are more mobile devices than people. This says a lot about mobility. Past week, a new milestone was reached: there are now 7 billion people on this planet. When looking at these amazing statistics and the fact that a New York City marathon just has been completed, one of the things that one can realize is the fact that we have the technology to tag every single individual of the 47 000 people who crossed the finish line. We can find out who they were – as they are known from a pre-registration process. Technology is really there.

As regards similarities or the differences between the two single markets, would be in the US, that US citizens are probably more mobile. They move around a lot, e.g. for jobs. It is not the challenge that Europe faces – as the language is not so much a problem in US. Although there are many different communities that speak multiple languages, but this is not an issue like in Europe.

When it comes to eProcurement, that is still an issue that requires some work and eCommerce is extremely high. An example is the growth of amazon.com. That has some positive consequences in terms of eCommerce, but also some negative ones. As said earlier, the US has one single market with 40 000 problems. Part of that is that the localities require taxes from the exchange of goods – sales tax. In many cases laws have not caught up. We are still living in an analogue environment. We have not moved up to a digital framework for thinking. We are just seeing some of those issues but we have not yet figured out how to take on some of these challenges. When looking at this growth in mobility of the citizens and the enormous growth of mobile devices, have the choice either to ignore, to renounce or to engage. And this is really an important challenge.

In the US, the biggest issue is Identity Management and knowing who is doing what, who is causing a transaction to occur. And there are enormous amounts of problems of fraud when it comes to Medicare and Medicaid or when it comes to prescription of drugs, because there are no shared data bases needed to figure out if somebody is going from one doctor to the other, or from one State to the other and getting prescription filled every time they make a stop. This is a very serious problem. The good news is that there are a number of organizations that are actively working on it. No less than 25 working groups in the US alone that look on some form of prevention. You have a choice whether if you have these mobile systems and the need for greater checks and balances, do you catch somebody after they committed the crime or do you place your resources into fraud prevention. And there is a big shift in the US starting to figure out that it is a lot easier to stop something before it begins. And this is where technology can really play a role.

There are 89 746 units of government in the US. There are 50 States and about 40 000 cities and counties that have a reasonable amount of staff and population. The interesting thing here is, that there is an awful lot of technology infrastructure but they do not talk to each other. But there is some progress done. But as we see more citizens moving and having this mobile devices, this presents a totally new challenge. The level of trust as seen through the

eyes of citizens has never been lower in the last two decades. Now there is another issue: We want to promote eCommerce, at the same time we want to protect privacy -- and people still do not trust us. In this context, citizen engagement and citizen participation are noble goals that are basically aimed at restoring trust.

We have cyber-borders that are much harder to contain because people do not look at things the same way. There are 911 systems, 311 systems etc. and it is very frustrating to citizens when they push those numbers and somebody answers “I am sorry, I cannot help you, you are in another area. We don’t know where you are”, and they are either trying to report an emergency or they trying to report some disorder in a street.

In the future, will those security numbers be enough? Or do we need to have a kind of global number that ties it together? And it has been discussed whether there should be an IP address – and now with IPv6 we can have a whole family tree. In the future, might every citizen have his/her own personal IP address as a universal ID? But, there are 50 States in the US and they are not totally happy to have one uniformed set of rules for centralized ID.

The greatest challenge is about leadership and culture, not ICT.

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Q&A

A question addressed to Isabella Chiodi, was whether IBM is involved in these challenges.

The session’s chair, **Isabella Chiodi**, IBM, acknowledged that the main challenge is mainly about leadership. Technology is the enabling factor and it is making the difference, but technology is as effective as the people that are managing it.

A global company like IBM is definitely involved in these challenges. As a large enterprise, IBM is lucky to support trends and decide where to invest and how to prioritise investment. The company, which is celebrating its Centennial this year, has a long-term experience in managing infrastructure, investing in software and research.

The session’s chair then briefly wrapped up the session: The presentations made clear that there is one common goal: increasing collaboration and moving towards a single market. One of the key challenge is managing a huge amount of data, integrating data. Data management is always about collecting data, integrating data and analysing data. However, the scenario to be addressed today is completely different. It is not about a simple transaction with an input and an output. Today it is about collecting data of different natures, structures, images, sounds, from different sources simultaneously. It is about representing events. It is about events management with information coming from all across applications and systems.

And data management is about moving data out of the silos. It is about federating the data -- federating data without the need of moving them to a central repository. Allowing to retain control and same time have a single view of the truth. There are also new disciplines like decision management. Decision management is at the crossing between expertise and

technology. It is supported by two technologies: business event management and business rules. To manage all the mentioned challenges, we need to take real-time decisions based on a myriad of information. Thus, having effective business rules working and embedded into the applications is vital. But this is not enough: there is also a need for business rules engines, the use of natural languages, so that we can very fast change the embedded rules and manage exceptions and variables coming on there.

Technology is there, but how we use technology makes the difference. Accelerating towards a single market is going to make talents and skills and resources much more available and appropriate to manage all the information that can make our lives different.

The session has been introduced with interoperability The question whether the biggest obstacles to a single market are legal, operational, semantic or technical interoperability was addressed to all panellists.

As the only panellist coming from the US, **Alain Shark** stressed that in the US, it is mostly political, because it gets into the culture, the norms of an organization and their workings. The other panellists agreed, that the biggest obstacle in Europe is mainly semantic interoperability, but that political and organizational interoperability are also an important barrier.

A participant from the audience proposed to whenever a national citizen gets his or her digital passport, to produce a sheet of paper with it, physically, which provides a list of some of the Internet accessible services of the EU, on social security, on the labour market website etc. Most people would put these documents, that passport and the sheet of paper, in a secure place and they would read them. That would be a very important way of presenting European opportunities to national citizens living and working and retiring in the European space.

A member of the audience delivered a reaction on interoperability and how it coordinates with global governance: There are some issues that can be solved on interoperability levels, but due to the new cyber-borders there are other issues that can only be dealt with at a global level. We do not have geographic borders controlling them anymore. Now, a citizen in his own living room is going to cross the border every two minutes and is coming back with something. It can not be controlled anymore. So, some kind of governance like content regulation has to be done at a different level. One thing is interoperability – the other one is global governance.

Another question was addressed to Ken Ducatel, who mentioned in an earlier presentation that the EU structural funds are only partially exploited. What is the key reason that a huge amount of money remains unspent?

As **Ken Ducatel** explained, the difficulty is largely one of the institutional capacity which regions and Member State national managing authorities have in terms of allocating the funds. Many of them have to learn how to implement that according to the rules which exist. (The rules are not necessarily invented all by the Commission). This is not easy to do and so you find those moneys which are most hard to spent, such as the ones involving public procurement for large contracts, will be the ones that go lower than the ones that are well known. At the moment the EU-payment on the 2007 to 2013 programme is at 30%. So, there are two years left to run in this 7-years programme with a current absorption rate of 30%.

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Regulatory Challenges and Opportunities in a Digital World

The **moderator** of this session, **ANDREW LIPMAN, Partner Bingham McCutchen**, USA, who has been moderating this panel with great expertise since many years now, welcomed the panellists and introduced the session with a few remarks on its long tradition.

It is interesting that not only did many of the companies we talk about today not existed at the time but even some of the founders of the companies like Facebook were merely born when the first Global Forum Regulatory Panel took place. But nonetheless, there are some threats that seem to run through the panel and even though the technologies and markets have changed, the question fundamentally is, what is the proper role of government. Many would say that the role of the government should increasingly reseat in this sector year after year. In this context, it was interesting to hear some of the speakers of the Global Forum 2011 saying that perhaps there is a new need for regulatory involvement.

The **chair** of the session, **DESIREE ZELJKA MILOSHEVIC, Senior Public Policy and International Affairs Adviser, Afilias,** Ireland, [www.afilias.info], welcomed the panellists and made some excellent and thoughtful opening comments:

In order to set the panel discussions of such a broad set of issues that concern the regulation in the digital world, especially looking at broadband, the session will touch upon questions like “is there a need for a new regulatory model?”, and “is there a need to protect the Open Internet”. It will also cover issues such as data harvesting and privacy, as well as private and public clouds. Quite often we hear just the buzzword “cloud” being used without much context. In addition to this there are questions about spectrum policy and open data trends which are part of many national and public digital agendas.

During the last few months, we have been witnessing the debate about the Open Internet and we have seen some commercial pressure to erode the open Internet. The principles that govern the Open Internet were established early on as a norms and those include the principles of end-users being able to equally access any lawful Internet content and applications. It also includes the principle where application and content providers are able to interact with end-users without the permission of network operators. Part of this was the so-called Plum report and the discussions that were taking place in Brussels last week trying to see if there is a need to protect the Open Internet. These principles of the Open Internet are at the heart of innovation and it is become more and more evident that the rich content and applications supported by the Open Internet are really going to improve the business case for the NGA networks.

MICHEL COMBOT, Deputy Director-General responsible for managing the Fixed and Mobile Services and Consumer Relations Department, ARCEP, France, skilfully answered the question about the French experience in allocating 4G frequencies, in regard to the terms set for the call for applications and the initial results of 4G licence awards.

In France, the process of preparing the terms of allocation for 4G frequencies, the 800 MHz and the 2.6 GHz band, was consistent with efforts being devoted across Europe to make new harmonized frequency bands available for the deployment of 4G mobile networks. The allocation of those bands is already underway with a procedure launched in June 2011.

Several objectives have been set for the award of 2.6 GHz FDD and 800 MHz frequency band spectrum, of which three are core objectives: Digital regional development, effective and lasting competition in the mobile market, and monetizing the State's intangible assets.

To begin with, French Law requires that the allocation of the 800 MHz band make digital regional development a top priority. This objective is specific to 800 MHz frequency bands that are part of the digital dividend, and whose propagation properties enable broad coverage. To satisfy this top priority of digital regional development, ARCEP defined the following four provisions:

First, ambitious coverage targets, both nationwide and at the departmental level. Licences to use 800 MHz band frequencies set ambitious national and regional coverage targets. The rate of coverage of the French population that must be reached within 15 years is set at 99.6%. For mobile networks, these terms also include coverage targets for the population of each department.

Second, an obligation to perform rollouts in sparsely populated areas first.

Third, the system includes measures for encouraging operators to share their network and their frequencies in these areas that are hard to cover. Network sharing allows operators to reduce their rollout costs. These provisions will therefore make it easier for them to achieve their coverage targets, but also to supply high-speed connections thanks to the use of broad channels.

The second core objective in the frequency allocations is mobile market competition. There are three "incumbent" mobile carriers in France, which rolled out their 2G services in the 1990s and which were the first to be awarded 3G licences in the early 2000s.

The final core objective is monetizing the frequencies, which are a State asset. Given the value of this spectrum, and particularly the low frequencies, their monetization represents a considerable stake.

These principles guided ARCEP a few months ago when establishing the award procedures for 4G licences in France and at least for the first stage of the process which concerned the 2.6 GHz band -- the stated objectives were met.

ARCEP announced the results of the 2.6 GHz frequencies awards procedure in late September. The applicants were the four French mobile operators. As a result, as provided for in the terms of the call for applications, all four operators were selected. Each of the operators was awarded a specific quantity of spectrum and the result was a very balanced distribution of the 2.6 GHz frequency band between the four operators.

The outcome of the procedure was also satisfying in terms of monetizing the frequencies. The auctions resulted in a very high valuation of the State asset, bringing in a total 936 million EUR. For the 800 MHz band ARCEP expects a bit less than 2 billion EUR.

In Canada they recently set aside some spectrum for new entrants and did not allow the three largest companies to participate. This has also been seen elsewhere in Latin America and has been discussed for some spectrum in the US. The **Q&A** addressed the question whether there was any sort of this in France in terms of reserving some of this spectrum for a new wireless provider? Michel Combot explained that in the procedures the is no specific spectrum reserved for new entrants, but the procedure did allow new entrants to take some frequencies. However, the only operators who applied for those frequencies where the four French operators. Probably the price of entry is too high, both for buying frequencies but also for deploying the networks.

THIERRY DIEU, Acting Director, European Telecom Network Operators' Association – ETNO, answered with great insight and detail the question about the main challenges ahead for the EU telecom sector over the next years:

One of the main challenges telecom operators are facing is the tremendous growth of data traffic. There is an increase of 30% per year on fixed networks and more or less 100% on mobile networks. The global Internet traffic is expected to grow fourfold by 2015. This is really an unprecedented pace which is primarily due to the rapid uptake in the usage of new services like social networking sites and over the top applications in general. Also mainly video, but also the emergence of new devices like smartphones and tablets, which allow accessing these kind of bandwidth hungry services.

At the same time however, the overall growth of the telecom sector revenues in Europe has been negative in 2009 and 2010, and this is not only due to the crisis and the overall downturn, but also due to structural changes in the sector. Telecom network operators revenues went down from 350 billion EUR in 2008 to 332 billion EUR in 2009. Revenues from voice, which represent still 57% of the overall revenues of telecom operators, are experiencing the largest decline. Which means as a consequence that overall investments are also dropping. And this puts at risk the achievement of the ambitious European Digital Agenda broadband targets: Broadband coverage for all EU citizens by 2013 with basic broadband access and by 2020 we should provide all households with 30 MB per second and half of the EU households with up to 100 MB per second.

The connection between the rapid increase of data traffic on one side and the reduction of revenues on the other side demonstrates that so far this increase has benefited mainly the OTT players based outside the EU but not those players who have to bear the costs of those investments in new infrastructure.

Operators will have to search for new revenue streams and in order to really monatize on this traffic increase and turn this into an opportunity for growth in Europe in the years to come. We will whiteness in coming years a move from voice to data based business models and none of this can be achieved without sound business models that allow investment efforts and new business models based for instance on new commercial agreements, on a quality of speed with content or service providers or on differentiated retail offers based on quality of service, speed or volume.

New provisions in the existing EU framework on transparency shall ensure consumer choice and Open Internet. Any further regulatory intervention which would limit operators' ability to manage traffic or to develop new business models would risk further slowing down the development of the sector and reducing consumer choice.

Three main keywords: the difficulty to predict changes, new business models, increasing competition with global players. The three keywords really lead to the thinking that there should be less rules but a more flexible and more targeted and more symmetric regulation. But also considering the current economic climate and the potential of the telecom sector to drive growth and jobs which Europe is desperately looking for, we should not focus on short-term fixes for the telecom sector as such, trying to drive prices down or to create even more competition but maximize as much as possible the potential of this sector to create new growth and new jobs.

The **Q&A** addressed the issue of new business models: Would this be charging more for very high data users? Mr Dieu explained that there are several routes but no silver bullet solution, but rather several possible options: One is definitely to put on the market differentiated offers, to offer consumers different packages with different tariffs depending on their needs, but also to negotiate commercial agreements with those players who are generating a lot of traffic to offer them a guaranteed QoS over the network.

NICO GROVE, Assistant Professor, Infrastructure Economics & Management, Bauhaus-University Weimar, Germany, expanded on the question "why should people in metropolitan areas pay for underserved people in rural areas, in particular since many of their costs for housing and living (i.e. food) are lower compared to metropolitan areas. What drives that process for cross-subsidisation?"

We have come to a point in the telecom regulation where we try to fulfil two goals at the same time: The one is to drive prices down and the other is to keep up a nationwide provision of broadband services. This is why we came up with all these issues such as how to serve people equally nationwide with identical services like we do in electricity, public streets, water, or gas etc.

But also from the beginning it is a matter of a network effects: When introducing, for instance, mobile phones, it was not of interest for a lot of people as they could not call anyone else on a mobile phone network due to a very limited number of users connected. So it is very important to include more and more people into this network. And maybe the effects resulting for the universal service discussed might be even higher than the cost embedded on.

The Network Neutrality issue is also related fundamentally to this question. Why should people pay more for a service which in the meanwhile has become a commodity? We have seen this development in electricity sector and we had this commoditization effect in many other industries. Moreover, old, persistent market players are not developing as fast as the new ones and therefore we have to distinguish the commodities' providers like telecom operators and those ones who really develop the services. The next step is hence to offer nationwide services and in this context we also have to think about universal service financing in order to provide the entire population with broadband services.

The **Q&A** referred to how this universal service should be structured: Should it be as it is in many countries where subsidies are given to carriers? Or alternatively, coupons should be given to end-uses and let the end-users go to any carrier they want and let them use the coupons for whatever purpose they want?

There are regimes active which might have introduced universal service funds, e.g., there were discussions in Great Britain or the Universal Service Fund in the US. There is also one approach implanted in the German law which has never come to activation yet and which shall burden the cost of nationwide access on the operators. This would just shift their cost curve and operators can then decide to burden this cost on the entire community again. However, at the moment it is still argued that it will increase the price for telecommunication services in rural areas. For sure, this is true, but if you have to open up a nationwide calculation operators were confronted with this issue from beginning too. Actually, broadband costs more in rural areas and now operators have a competitive problem when advertising nationwide on TV . In consequence,it is rather hard to argue offering in a rural areas higher subscription rates. Summing up, Universal Service is a change in the provisioning costs of operators, shifting their cost curve upwards.

THAIMA SAMMAN, Partner Samman Law Firm, France, provided a very clear and concise answer to the question about the main regulatory issues posed by the deployment of cloud computing technologies:

Cloud computing raises the issues that we are facing since the beginning of the digital area 20 ago to a more important level. There is a kind of counter-culture in the way countries are used to regulate. The tradition of regulation is first and above all to provide a national framework of regulation. There is a unique experience with the EU who is trying to harmonize the rules of 27 countries. If they succeed this could be an example for the rest of the world for being able to find a common way of regulating beyond national frameworks.

The second issue we are facing with Internet and cloud computing is the relationship with property and ownership. Who owns what in the digital world and who are you – or to paraphrase Sam Gosling “What your stuff says about you”. The question of ownership needs to be addressed. The recurrent issue of Intellectual Property is becoming more and more important in the cloud.

Two initiatives that are worth to be mentioned: First in the US, the release of the Federal Cloud Computing Strategy this year, which is more about the economic aspects and the development of the cloud, but in which regulation plays an important role. Second, the European Initiative on Cloud Strategy which is supposed to be released in 2012, which extensively consults the different stakeholders to be able to address the issue of regulation in the cloud.

What is needed today in the cloud is harmonization for people to understand what are the rules. Harmonization at the European level is important, but the main actors are Americans today and the cloud is global. So, how to find common rules which are not aggressive to the sometimes very different cultures? Maybe we should think about interoperability of rules. At least, the rules need to be consisted for global actors enabling them to know where they are and what they can do in this domain.

In the context of cloud regulation difficulty, there is also the need for some specific rules per sector. Cloud computing is transversal and addresses a series of activities. Some of these

activities have some specific rules that are not harmonized either, such as finance and health. As regards health, the EU is not even competed, because health is national competence.

When talking about cloud regulation, we automatically think of regulation for the providers and other cloud professionals. But there are a lot of other actors to be taken into account and the rules are going to be different corresponding to the actors. For instance, in the context of B2B you are not taking to professionals of the clouds, your clients are companies for the rest of the economic area. But in the B2B there is also the government with very specific clients and some very specific requirements. There are also consumers, and you have different users that cannot be addressed via contractual agreements, and also individuals. The cloud also concerns people that are not consumers as they did not chose to enter into an agreement with the cloud providers, based on the new business models where you do not pay anything: You go through publicity and you get a certain level of services, such as Facebook, Youtube etc. What are the nature of the people engaging in this kind of area.

The most popular regulation issues of cloud computing are: First, applicable law and jurisdictions. As long as we do not have harmonized rules, we are going to decide which rules are going to apply to which actors of the cloud. The second issue is will be data protection. Third, the confidentiality of data. The individuals being protected by data protection, companies or professional entities will need to be protected by confidentiality rules which will include access to data – which will depend once again on the sector concerned. And security is one of the biggest issues. As well as interoperability – even if this depends on what you put into interoperability, in particular when discussing about clouds provided by private actors.

The question whether any of these issues will lead to global standards was added by the moderator.

Ms Samman answered that this will not be the case in a short term, but in a real global world with no conflicts and contradictions between countries and stakeholders, maybe. We would need standardized consumer laws, standards on data protection, which is a debate since a long time. Not even to talk about more sensitive issues such as freedom of expression. Countries come from very different cultures, they have different levels of development and they do not care about the same things. Global standardization will not be for tomorrow.

GÉRALD SANTUCCI, Head of Unit, Networked Enterprise and RFID, DG INFSO, European Commission, shared his expertise and experience with the audience, when answering the question whether there is a really special Internet of Things or is the Internet of Things just another application on top of the Domain Name System.

The European Commission is currently working on recommendations to Member States concerning the governance of the Internet of Things. The Internet of Things refers to a vision more than to a technology. It is a vision of embedded communication and computing in which identifiable connected devices are to be integrated in the environment. Eventually the Internet will become a platform that connects people to people, people to machines, machines to machines, people to things and things to things. Today, there are 7 billion humans on earth; at the same time, there are about 70 billion machines and about 70 000 billion 'things'. Every such thing, could be – if humans want – identified and connected to a network.

The Internet of Things compared to the Internet does not refer to a new network infrastructure, but rather to the network built up by the interaction of the objects that participate in a multitude of networks. The Internet of Things is likely to use the Internet as a substructure though it will not be restricted to using only the Internet. One element that of course remains very similar between the Internet and the Internet of Things is that the Internet of Things currently uses the naming system of the Internet, with its names being a sub-tree of the dot-com registry. That is the basic fact why we can speak of an Internet of Things, even if some people say that this could also be realised with a wireless sensor network. Obviously there is a strong link between the Internet of Things and the Internet – at least because of the reference to the naming and addressing systems. But nothing prevents that the Internet of Things' naming system becomes root in various registries or if the architecture would allow it, controls its own TLD. However, it is difficult today to see what path might be taken to do something else than the Internet addressing and naming. The Internet of Things should not need to create its own infrastructure when there are already so many infrastructures existing.

Therefore the Internet of Things is likely to be part of the Internet while also being separate from it. What is it in concrete terms? The Internet of Things should be seen as a collection of interconnected but local and private networks. One could call that the PANs (Private Area Networks). Every PAN is part of the Internet but not the members of the PAN. The members of the PAN are actually the things – any kind of things. But what is connected for sure is the PAN, not in all cases the objects themselves. Therefore, the Internet of Things is a useful way to refer to that period when not only people with talk to people and people will talk to systems, but also objects will communicate among themselves. In the Internet of Things you will find clouds, wireless sensor networks, RFID, storage technologies, identification technologies etc.

Why do we need to prepare some recommendations to the governments? Because there are a number of issues or challenges that we need to take care of, such as clouds, security, privacy, trust and ethics. Ethics because when we will have objects being able to make autonomous decisions on behalf of or for human beings, the issue of ethics will be raised, going far beyond the one currently used in system design. And it is time to have some reflections in this kind of issues.

The **Q&A** addressed the question of what should be the governance mechanisms on the Internet of Things? In his answer, Gérald Santucci referred to a kind of 'guiding star', which is what has been done for RFID one year ago. That is adopting with a lot of success so far the co-regulation regime by putting together all the actors, industry, civil society, governments, lawyers etc. They were able to develop -- not in 12 months, as it was their mission initially, but in 20 months -- a privacy impact assessment framework (PIAF). If you would have asked in June 2009 if this would be possible, the answer would have been 'no', but is has actually been achieved – and it was done because all actors were brought together. It was not self-regulation, it was co-regulation because experience has shown that there is a need for some entity to coordinate, to incentivise and to monitor. That example with RFID could be something useful for the Internet of Things. What the recommendations will say can not be said today because there are still two years of work ahead, but it will be a combination of self-regulation, co-regulation, standards, and maybe legislation. It will be a combination depending on the topics to be addressed and probably also something that should be done at a global level, such as the work on standards.

SARAH ZHAO, Partner Perkins Coie LLP, China, provided a remarkable insight when answering the question about the new developments in the Chinese law regarding telecom in the last years:

New Development China Telecom Regulations

Since last Global Forum in November 2010, people are still waiting for the China Telecom Law. It still has not come out and there are still a lot of uncertainties. Moreover, agencies have different agendas and the conversion of three networks will need a lot of restructuring of government agencies. So, it will take a while.

But on the other hand, major wireless and satellite rules have been published. The PRC Wireless Management and Control Regulations became effective on November 1st, 2010. The PRC Wireless Frequencies Allocation Regulations became effective on December 1st, 2010. It has been an evolving process from 1978 first wireless policy and 1993 first major wireless regulations, to current two rules. They have set forth comprehensive standards for providing services to the 860 million customers of the public mobile communications networks in China.

Together with this, a number of satellite rules came out for the purpose of making full use of satellite wireless frequencies, reduce illegal cross-boarder users, and to ensure the communications safety, according to MIIT: The Satellite Mobile Communications System Terminal Earth Station Management Measurement, which became effective on June 1st, 2011. Regulations on Establishing Satellite Networks and Equipment Usage for Earth Station Management were issued on April 10th, 2009. Since 2009 to 2011, about 30 local government agencies have issued rules or policies governing satellite and mobile communications earth stations. All this together set a very solid home for the Chinese mobile and satellite industries.

However, there are a lot of uncertainties because the China Telecom Law has not come out yet. And even the wireless rule makers are facing an ongoing issue, caused by the fact that in China, the military has a lot of control over the wireless frequencies.

Nevertheless, the convergence of telecommunication, broadcasting and Internet networks is making progress.

The **Q&A** referred to the question what is the single largest challenge Chinese law makers are facing today in terms of enacting telecommunication law. Sarah Zhao explained that this is giving up benefits from different sectors. If the government now allows the combination of the three networks, the telecom industry will lose a lot of power. With the convergence of the three networks, the broadcasting sector will come into the picture as well as the Internet players. Up to now, it was the telecom industry who controls everything. Now, they have to step back and gave up certain power in order to allow other players to step in.

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The chair and moderator opened round two of questioning with a question addressed to **Michel Combot**, ARCEP: Network Neutrality has been around for quite a long time now. It is an issue between public policy managers, consumers and private companies. Beyond the passion, what is ARCEP doing in Network Neutrality?

Mr Combot answered that ARCEP started to work on Network Neutrality in 2009. ARCEP published last year 10 rules and best practices. The main objectives were threefold: First to guarantee that Internet access providers supply users with access to all contents, services and applications in accordance with the local provision in a transparent and non-discriminatory fashion. The second objective was to guarantee a satisfactory quality of service. And third, to enable the long-term development of the network and services thanks to innovation and the development of the most efficient technical and business models.

ARCEP's main conclusion was first that the sustainability of net neutrality goes along with competition in the Internet access market. ARCEP nevertheless believes that a dedicated approach needs to be adapted and formulated ten recommendations and principles on the formulation of requirements concerning Internet access, on the increased information for end-users and on the monitoring of Internet access and requirements. Especially with the new European directives ARCEP can impose stricter measures if necessary, for instance ACEP can impose a minimum QoS on Internet access providers. ARCEP is currently in the process of implementing these recommendations. There will be an implementation report to the French Parliament in March 2012.

The question addressed to **Thierry Dieu**, ETNO, was: how should the regulatory approach to high speed broadband networks evolve to stimulate investment in new high speed broadband networks?

Mr Dieu mentioned the pricing of the current networks as a very important element which influences the business case for investments in new networks. If you artificially lower the price of current copper networks, you will disincentive the investment in new networks and make it more difficult for users to switch to high speed networks, which will of course cost more.

A second important element is to make the difference -- as far as access regulation is concerned -- between the regulation which was developed for copper networks almost 20 years ago and the regulation for the new networks which are built in a completely different environment. In the recommendation on NGN issued last year by the Commission, there are already some elements which – if applied by regulators -- can have a positive impact on investment. First of all it is more symmetric rules applying to all operators. The second is the rules which are targeted to the competitive realities, even within a national market. So you should have different rules within your national market depending on the competitive realities, basically between rural and remote areas or densely populated urban areas. The third element is pricing flexibility. It is very important to apply more flexible pricing to NGN and not to strictly rely on the cost orientation which is a concept which was developed for copper networks.

Nico Grove, Bauhaus-University Weimar, was asked if other players like youtube use the network operators' infrastructure as bitpipe, how can those network operators refinance the investment into additional capacity and shouldn't the network operators have the ability to control and hence block these type of services?

Mr Grove stressed that this question is exactly following the debate towards Net Neutrality. Providers want therefore introduce some kind of different pricing models or differentiated service models for different services and other kinds of discriminatory mechanisms. It is important to keep at least e.g. 50% of the capacity at the so called "best effort" principle and e.g. the remaining 50% for the providers, where they can offer additional quality of service model. And in addition, we have to deal with the same issues other resource industries had: if entering a price competition within a market, one has to also think about the possibility of increasing the prices in the future. This might not be the best idea for satisfying consumer interest, but price were introduced by the operators and now they sort of have to live with their responsibility. On the other hand, providers already are charging for the capacity the content producers inject into the networks. This may be another provider, but the market offering is existing, as e.g. a 2GBit-per-second leased line. Furthermore, there exist either peering agreements or other operators connecting their networks wise versa – The system cannot lose money, and therefore operators , they have to update their calculations again. As an example, the mobile phone industry is currently reducing traffic levels included and introduce new, higher prices for LTE. This might be interesting for the consumer even if it might be a forced thing: Charging the legal injecting content provider twice might not be an option because it raises questions related to copyright issues.

The question addressed to **Thaima Samman**, Samman Law Firm, was what policy makers could do to increase the trend of cloud computing usage, in particular for SMEs and very small businesses who do not have the benefits of large enterprises and how could they encourage the emergence of cloud service providers?

Ms Samman explained that they could help in two very different aspects: The first one would be to answer to the most important concerns of potential users and to identify what these are and what can be done. This is linked to the second one, which is to be efficient in getting the best out of the cloud and optimising what the technologies are able to offer today.

It requires a very smart and deep analysis of where and when we need regulation and where we do not. The current level of development of cloud computing and usage compared to its potential is nothing and we do not know how it will be organized and who will be the main players in the coming years. This does not mean that we do not need any regulation, but we need the right regulation and there is a timing for putting in place this regulation.

In this regard, the regulators need to differentiate the different actors of the cloud – from the users to the infrastructure platform, service providers, individual users such as SMEs etc. and to be very careful in identifying the right needs. They need to identify the needs and they need to ask some questions that can be solved through contractual discussions with their providers. What needs to be clear is certainly the level of the liability through the different providers to avoid that the last provider in front of the users has all liability on its shoulders. This requires once again harmonization and some support, contractual for the professional users. It is very important for each professional user to asses the level of risks he is able to accept versus the price he is able to make and to make a choice but also to asses his needs and be able to ask the right questions to providers such as the capacity of storage, bandwidth, or security issues. This can be addressed through contracts. The role of the

public authority would be to inform and to educate in particular SMEs to be able to raise those questions.

As regards the concerns that could be obstacles to the use of the cloud: The cost and risk for a company to switch to the cloud. That issue needs to be addressed and needs public support. Security is another issue to be addressed. Morover, broadband development is very important, because if we want to use the cloud we need to have the network to do that.

In short, identify the most urgent issues and keep monitoring as the cloud is developing to identify the business model, education and place to discuss to identify the right issues.

The question addressed to **Gérald Santucci**, European Commission, was whether there are public policy implications such as privacy that apply to the Internet of Things and how and by whom should this public policy implications be managed?

Mr Santucci explained that it will be the result of a wide set of consultations involving all the actors. As usual, it will take more time than we would like. Again, in the case of RFID it has taken 20 months for developing the privacy impact assessment framework instead of 12.

The question addresses the issue of governance from a general point of view. It might be useful to distinguish the technical aspect from the political aspect. From the technical point of view, the Internet of Things could be seen as a collection of Private Area Networks. Each of them being connectable to the Internet. In the longer term this may change. There are some EU research actions and projects working on reference models that would take the form of a dynamic global networking infrastructure with self-configuring capabilities. In this infrastructure you would find both physical and virtual objects. They would have identities, physical attributes, virtual personalities, and they would use intelligent interfaces. All that could be true. There are many requirements for that to happen -- the main one being able to develop standardized and interoperable communication protocols and we are still very far from that.

From a technical point of view, we can not exclude that in 10 years or more there will be an Internet of Things network infrastructure. From a political point of view, we are bound by a decision of the Member State governments in 2008 saying that we should try to promote a shared and decentralized network governance. It is not sure that all Member States today agree on the definition of that, but there is view in Europe that Member States should be able to supervise, or at least to be involved, in the way the identifiers or the uniqueness of identifiers which are linked to objects will be guaranteed. They would like to ensure the security and stability of the networks that link objects. They would like to avoid monopolization of data control as well as any misuse of data, and they would like to support competition among the service providers. From a political point of view, we are moving to some kind of decentralized governance, but it will be a federated one, because all the issues are not national but global one. We need to be creative in order to design and apply that governance mechanism that would allow the Internet of Things to be deployed quickly and effectively. Forecasts say that the Internet of Things' global market will range from 500 billion to 1 000 billion EUR in 10 years from now.

Sarah Zhao, Perkins Coie LLP, was asked about the top two or three words of wisdom to give to an potential investor given the still evolving uncertain china regulatory environment.

Ms Zhao pointed to the fact that China is still a central controlled government, so investors have to use a different approach, accept the difference and make the best out of it. If you want to do your own (western) way in China, that would not work. Actually, most of the big companies in China which have not made big noise are doing very well -- but they do it quietly and in a compromised way. The telecom sector is a very restrictive area and it is advisable to find a Chinese partner to work with. Finding the right partner is crucial. An last but not least, to find a good lawyer. One can do business in China but due to its cultural political language everything is so different. Having a goof lawyer who comes up with the right approach will save a lot of headache and money.

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eProcurement: Vision for the Future -- Empowering the Economy

The **chair** and **moderator** of the session, **ANGELA RUSSO, CONSIP S.p.A,** [www.consip.it], Italy warmly welcomed the panellists and skilfully set the scene for the coming presentations.

A dedicated session on eProcurement is one of the latest innovations in the Global Forum agenda. A specific session on this topic was firstly introduced during the Global Forum 2010 and the interest shown by the participants and panellists encouraged the organizers to include it also in the 2011 edition.

The major focus of the 2011 Global Forum has been the "Digital Future", thus we could not refrain from tackling the issue of the "Digital Economy". The structure of the eProcurement session started from the consideration: Since the future of economy is more and more digital, even public procurement will and should be more and more digital, thus electronic. So how can eProcurement concretely empower the economy?

There was continuity with last year's eProcurement session during which it was tried to point out what has really changed in each country since the introduction of eProcurement. Apparently simple questions, but complex answers.

Some answers to our main questions have been provided by a panel of international experts on procurement issues representing Denmark, Portugal, Italy, France, Romania and of course the European Commission who brilliantly took care of the opening and conclusive speech of the session.

eProcurement empowering the economy. What does it really mean? A first immediate consideration is linked to the topic of money saving and cost reduction. Of course, by using electronic procurement you are at least saving time and paper, and the money you are saving can be used by governments to improve other areas, thus you are indirectly affecting the economy.

You are definitely providing more opportunities to businesses, especially SMEs. This is not only an idea, but a provable fact since the Italian eProcurement system won the 2009 European eGovernment Award in the category "eProcurement empowering businesses". Italy succeeded in proving that by using the MEPA, the public electronic marketplace, the Italian micro enterprises (with less than 5 employees) were making an average turnover of more than 100 000 euro per year.

And if summing up the use of eProcurement tools to some kind of centralized model, you can save even more money because you may leverage also on the quantity of goods and services to be purchased, not only on quality and cost, thus achieving the double Q target: Quality and Quantity control.

But indeed, empowering the economy does not only refer to cost reduction and savings. eProcurement can empower the economy also by making the procurement process more efficient and transparent. "Transparency" fundamentally refers to the availability of information and data. There is a huge amount of information available for the users. This data and information can easily lead to economic development if used in an intelligent way by the users! Suppliers can achieve a lot of information on present and past tenders and this information increases participation, thus competition, thus economic development.

The seven panellist expressed their point of view on these ideas, made a presentation of the major eProcurement achievements in their respective countries and answered to the numerous and lively questions from the audience.

SARA PILLER, Deputy Head of Unit, Economic Analysis and e-Procurement, DG Internal Market and Services, European Commission, provided a most interesting talk by analysing the question:

e-Procurement and the EU – Which Path to Take?

eProcurement is a hot subject. Total public procurement in Europe is estimated to be 2 288 billion EUR (2009), that is around 18% of the EU GDP. In terms of what is covered by the EU public procurement directive, the figure is some 420 billion EUR. The figure above the thresholds is just one part of it. The total market is some 2 200 billion euros -- that is a huge market. People using eProcurement estimate savings in the range of 6 to 12% of their total expenditure just by moving to electronic procurement. In Austria, the Federal Procurement Agency estimates that they make savings of some 18% against their total spend.

It is interesting that we do not actually see eProcurement being developed as a leading policy as much as one might expect given those figures. There are large savings on offers and we are in a time of great fiscal austerity -- so it is quite strange that we are not developing that more.

eProcurement is available across Europe. The use is low, but it is growing. But there are very different systems being developed: Some countries, like the Nordic countries, have gone for it from the post-award phase, some countries have gone from the pre-award side. They are developing different systems, they are focussing on different phases of eProcurement, and they are sometimes developing them in different ways. Some countries require to register quite early in the process, some countries want to use very high levels of security, others have gone for much lower levels of security. Everyone is doing eProcurement, but a lot of people are doing it in their own way.

In terms of what we see from a EU level: Why eProcurement is not being used? It is not a question about technology. The technology is there to conduct eProcurement, but it is a question about transformation. There are a lot of concerns about how organisationally eProcurement should be adapted into the model. There are a lot of questions about overcoming change and fears that we need to work on.

In 2005, there were some 20 or 30 operational systems that did not really do very much. Today, there are some 200 functioning platforms in Europe that are capable of dealing with many phases of eProcurement. The market has developed and there is still much more to come. We need to move away from what we have been doing on paper and really take advantage of what these electronic systems can do. There are many things where we need to think not just back, how did we do in paper and how do we make that work electronically,

but just truly look on what we need to do and match the need to the action rather than to the history.

Europe is not looking at developing one “big brother” system. The Member States are just too different, with many different ways of dealing with procurement and many different legal systems. One for all is not possible in an environment with some 250 000+ contracting authorities, the EC is certainly not looking for a solution where there is an individual system for everyone of those authorities. But there is the need to operate within certain limits and this were standards come in to play. Within Europe we will always look to have very different systems, because we will match to individual needs, but we do need to develop some standards, that are not so prescriptive that they stifle that creativity but provide a blueprint for these systems.

It is great for contracting authorities to have systems that are tailored to their individual needs, but it is a nightmare for suppliers. Suppliers have to move from these systems and if they do not see sufficient communalities, they are either not going to use them or just going to stop offering their services to governments. We need to use the existing solutions, but there are maybe ways in which they need customizing to individual needs as well.

The EC is currently reviewing the existing public procurement directives. One of the suggestions is to look for ways to make eProcurement the norm and paper procurement the exception. There is no doubt that current progresses is slow. Momentum is building but the question is: Should we leave it to the market to develop or do we have to give it a push?

Member States are allowed to decide on a case by case basis, how they use eProcurement, when they use eProcurement and how much they use eProcurement. The are allowed to adapt to their individual need. It might be that you could force it simply by putting a date by which everybody must conduct a certain portion of their procurement electronically. In the recent Green Paper the EC posed this question. In total some 53% of the replies where for the use of the mandatory use of eProcurement but then they all added their specific comment, such as that you can not do this until some of the existing barriers are overcome, etc.

Today, a lot of the experiences and information have been gathered and we are now at a point where people are developing the solutions, but we need to do more to share those solutions and to share our experiences. We do need standards, but it might be to early to set all the standards that are necessary. At the moment, the way to increase the use of eProcurement and deliver those savings it is able to deliver, is to allow the market to develop.

JEREMY MILLARD, Senior Consultant of the Danish Technological Institute, Denmark, presented an expert's point of view on

e-Procurement in Europe – Benefits, Barriers and Role of EC

eProcurement is digitising the whole value chain from the initial interest offering to actually finalizing the contract. Parts of it have been digitised, certain parts have not, and different countries have gone down different routes. But clearly it is a driver for economic savings and economic change.

Government revenues are 45% of GDP. Public authorities purchase 15-20% of GDP (1 500 to 2 000 billion EUR) per year. eProcurement and eInvoicing could save at least 5% of GDP, and reduce transaction costs by at least 10%.

But, less than 5% of public procurement is processed electronically, ergo, potential savings of tens of billions of Euros annually are not yet being made. Furthermore, the European economy is composed largely of SMEs and, in particular, SMEs could benefit from easier access to public procurement markets and increasing their ICT capabilities and thereby competitiveness. eProcurement is also very much about making things transparent. That is an important aspect for SMEs.

The Danish eProcurement system, which was launched January 2002, is not compulsory but leads to annual savings of 95 million EUR. What is compulsory is eInvoicing, launched in January 2005. Once it was made compulsory in 2006/2007 its use shot up dramatically. eInvoicing leads to annual savings of 120 million EUR.

That does not mean that small companies use eProcurement. Some may be capable of doing so, but a small company could also mean a one-person business. For those which need help, the authorities provide it. Assistance is offered not to undertaken eProcurement on behalf of the company but to help them do it themselves in the longer term. It is quite a proactive system. The key in the Danish and also other Scandinavian examples is that if you start to get small companies using electronic interfacing with the government, such as eInvoicing, then, they will be more likely to use other parts of the eProcurment value chain.

One of the services the Danish Technological Institute provides is looking at the barriers to eProcurement, its availability but also use. Availability is actually a lot better: the European i2010 Action Plan aimed at 100% availability by 2010 and 50% use. That has not quite materialized. It is about 71% availability, which is not bad, considering that in 2005 it was under 10%, so there has been tremendous progress made. The big challenge is getting people to use it. Some of those barriers are the inertia and resistance of purchasers, the lack of awareness, understanding and practical skills of eProcurement among public agencies and suppliers (especially SMEs), problems with eSignatures and eCertificates, but also a lack of confidence in the electronic exchange of data on contracts among contracting parties. And many of the contracting parties, particular in large or medium sized companies, are so used to the traditional systems and services that it is difficult to change.

What should the EU do for eProcurement? Apart from the large scale pilots like PEPPOL for cross-border e-procurement, the EU should accelerate the switch-over from offline to online procedures by suggesting further simplification of procedures, exploring the role of the mandatory use of e-procedures, identifying regulatory incentives, and analysing the role of specialised platforms. It will be important to support the diffusion of simple, practical solutions, for instance by facilitating the mutual recognition of solutions and supporting the

main building blocks. Removing and preventing barriers is another important aspect in order to make it easy for suppliers to operate across systems and borders.

ALAIN DUCASS, Consortium Representative, PEPPOL Pan-European Public Procurement Online, France, gave a very distinguished talk on

PEPPOL – Cross-border eProcurement

PEPPOL is a EU funded project for cross-border eProcurement in Europe. The goal is to make the European market more fluent with regard to eProcurement. PEPPOL is one of the ICT PSP projects on interoperability. It is one of the five EU founded large scale pilots and has connections with the other four pilots STORK (access), SPOCS (business), eCODEX (justice) and EPSOS (health). The project is in its fourth year and will end in April 2012.

PEPPOL is split in two parts: interoperability of the pre-award process and interoperability of the post-award process. In Europe, the southern countries are probably more advanced in pre-awarding with plenty of eTendering platforms. In France for instance, there are hundreds of platforms. The biggest one is the Ministerial one with about 25 000 tenders that are launched on this platform each year and 350 000 downloads of eTenders by companies. The cost of the stamps to send the tenders alone would amount to 1.25 million EUR each year. This is 5x more than the cost of the platform.

In terms of European-wide interoperability of the pre-award process, PEPPOL provides the "Virtual Company Dossier" tool, enabling companies to send their dossier to another country and this country answers whether this fiscal attestation is ok or not. This saves much time and avoids that companies need to have a subsidiary in the other country. They can apply directly via PEPPOL. Other tools developed by PEPPOL are eSignature and eCatalogue. These tools are currently tested.

The main achievements with regards to the post-award process, is first of all a network so that the suppliers and contracting authority are in the same virtual private network. It is also possible to use the eCatalogue to make post-award orderings and after that eInvoicing. The most important aspect of PEPPOL is eInvoicing, as PEPPOL is driven by Nordic countries, who are more advanced in this regard. The intention is to open this up European-wide.

With 41% of the total use, eInvoicing is PEPPOL's most used service, followed by the eCatalogue (15%) and eOrdering (11%).

France will going to join the PEPPOL network on 12 December 2011. Further information are available at www.peppol.eu

PAULO MAGINA, CEO & President of the Board ANCP, The Portuguese National Agency for Public Procurement, shared the Portuguese vision of

Public Procurement: A Global Management Solution

Europe is talking a lot about procurement. Procurement is one of the twelve leading initiatives under the 2020 agenda. Procurement is key and connects with all other activities and areas. It is most relevant for empowering the European economy.

The reform in Portugal started in 2007 with the creation of the ANCP, the National Agency for Public Procurement. ANCP was established to implement and manage the new National Public Procurement System, with the Ministerial Purchasing Units. Its mission is to increase the efficiency and savings of the Portuguese Public Administration.

Since its beginning, the reform in Portugal focused on eTendering. The process covers every phase from eNoticing to eAwarding. Several web based tools have been developed to increase transparency, report and also to get information from the system in order to assess the savings achieved. The system is used by everybody who wants to sell to public entities and by every public entity.

eProcurement in Portugal is mandatory. The system started in November 2009 and from that point on it was used by every contracting entity. From one moment to the other, all public entities were using eProcurement. The success of the adoption of Public eProcurement in Portugal was based on the commitment of all stakeholders, namely the already established Public eTendering platform operators with several years of experience in the market. All platforms are required to be certified according to specific legislation. Major changes and achievements have been made in areas such as processes, transparency and security.

The monitoring of the system is quite open. A portal reports on each public award that is done, no matter if the entity is a local or regional one, a private company or the central government. The auditing is also much better now.

However, it is time to take the next step. eProcurement should set new trends in terms of public management. eProcurement so far has been seen as some ICT support tool to procurement, but eProcurement should be seen as the public procurement itself. This represents a change in the strategy. eProcurement should develop a value model -- a model that brings value to everybody in terms of shared services. The idea is to build a model that is based on common processes, on functional design and interfaces with existing technologies. There are too many platforms and too many technologies and it is not possible to change it from one day to the other. We have to use these technologies and design the system around those technologies. eProcurement as a global procurement strategy will pay off after one year and will have one third of the value that it is consuming today.

The idea is to take advantage of an interoperability platform and to aggregate data and processes and normalize that information in order to develop a solution covering the full public procurement chain. The idea is to take advantage of something that was a problem at the beginning and that now turns out to be a solution based on the interoperability platform that was put in place.

The use of eProcurement in Portugal in 2010 was 91%, according to the Manchester Ministerial Declaration (2005). eProcurement should be a new approach to public procurement and should be the strategy to public procurement itself. Investing in a global

eProcurement model will optimize management and will decrease overall costs. At the same time, it should be based on a top down approach. eProcurement needs the empowerment of higher decision makers, otherwise it will not work.

ANTONIO PELLICCIA, SCM - Procurement Services, IBM, Italy, [www.ibm.com], provided most interesting insights into the question

How eProcurement Can Help Envision the Digital Future Economy

Governing public expenses is vital to the health of the countries' public economies. We have seen that in the last decade many public bodies and country agencies started delivering several transformation projects with the clear intend to change policies, processes and organizations to achieve multiple objectives:

In first instance, public agencies with a regional or national scope were looking for effectiveness on volume scales. It was evident that valuable savings could have been attained by simply aggregating volumes on a commodity, goods or services, still being able to support the requirements of the public authorities.

The second objective was the clear need to increase efficiency of the government process while attaining the highest level of transparency and control of public spending. These major changes have been possible thanks to the introduction to eProcurement technologies, both in central and local public authorities.

The introduction of eProcurement technologies in association with other eGovernment initiatives enabled public authorities to foster competition in the supply market. This allowed public procurement to improve the results on effectiveness and efficiency, not only at a central government level but also at the local and regional level. We have the possibility to exchange and share technologies, best practises, benchmarks or even contracts and prices.

On the supply side, eProcurement has also been a stimulus for economic operators and SMEs that have found in the new systems some powerful tools to achieve visibility in public tenders, to access new markets with lower barriers to entry, to access new economic resources and opportunities. These advantages empowered the economy – for example, through eProcurement many suppliers have been able to publish their electronic catalogues in public marketplaces with the possibility of increasing the level of product visibility and revenue from public clients. At the same time, public authorities were able to compare market prices, foster competition and have access to single markets for goods and services.

Also in the EU, we have seen action plans, directives and key initiatives to support the introduction of eProcurement in every Member State. The PEPPOL project is a wide example of facilitating the interoperability of national eProcurement technologies in order to create a single market and eliminate cross-country barriers and to foster competition – even if the cross-country public spending is still very limited (less than 1% of the total).

But eProcurement introduction has not followed the same paths or the same steps in the different Member States and has reached different maturity levels in the different countries. Many public authorities, mostly in economically mature countries, have now implemented robust and comprehensive digital eProcurement platforms, covering all phases from the eNotification to the eAwarding phase. These public agencies have now reached a level of eProcurement knowledge that allows them not only to be a reference model for other public

bodies, but also to deliver services to smaller public authorities that do not have the resources to embark with an eProcurement platform.

Other countries with fast growing economies have recently started implementing transformation projects that aim to set the central or regional procurement agency and to implement an eProcurement platform. These countries can leverage on past experiences of other predecessors and on the availability of newer and second generation eProcurement platforms that help them to close the gap very quickly.

The key issue is that these eProcurement projects have missed to realise the control of the end-to-end procurement chain and therefore they have not implemented some other important processes like supply chain visibility, eInvoice or the spend analyses. eInvoicing together with the eSupply chain can complete the holistic digitalisation of the procurement process, providing additional efficiency and savings to both public authorities and economical operators.

The real benefit that is still not explored in the public sector is the spend revue. This is a major gap in today's procurement systems. It represents the key steps to be accomplished if public authorities want to move from understanding the spending to controlling the consumption. Very few public agencies are able to report the total country aggregated public spending. Nobody is able to say if that spending is correct or not, if the consumed quantities or amounts are in line with the requirements of that particular public authority, if the number of suppliers or tenders is comparable to the public entities.

By managing both consumption and strategic procurement, public organisations will be able to achieve financial targets that will help them to maintain sustainability of public services, especially during economic crisis.

RADU BOGDAN SAVONEA, Chief of Staff, Ministry of Communications & Information Society, Romania, gave an excellent overview on

SNEP – The National eTax-System of Romania

SNEP, Romania's national eTax-system will be made available nationwide and all public institutions in Romania are going to join SNEP by August 2012. From this moment on, any citizen from Romania, no matter where he or she is, can pay his or her contributions and fines to the Romanian state, from behind a PC, using a banking card.

The system is designed to accept all types of payments, but at the moment only card payment is possible.

The system was built in cooperation with the associations for electronic payment in Romania and with the help of the Romanian Ministry of Finance and some security specialist. Up to now, around 20 institutions are enrolled. In terms of the agenda, the first stage is to roll out the system in all major Romanian cities, the second stage is to enrol smaller cities and the last stage is to enrol villages and every public institution. The enrolment process is not very complex: one need to select a bank, then, a decision of the management or local council is required, followed by a request to the Ministry of Communication and Information Society.

No public money was spent for the development of the system. The system was developed within a partnership, it was tested and implemented. It is made available for free to any institution in Romania.

How is this system connected to the eProcurement system? Up to now, a cennection to Romania's well functioning eProcurement system was not possible. However, as soon as all institutions are enrolled in August next year, the next part of the system will brought up, which is to receive and make payments via online banking. At the end of August this will be made it available to everybody and connected to the eProcurement system. The eProcurement process then will cover the entire flow, from the first to the last step.

ANGELO TOSETTI, Head of Unit in charge of eProcurement, DG Informatics, European Commission, gave a distinguished presentation on

e-PRIOR – Helping European Public Administrations to Take the Leap Towards e-Procurement

Data exchange is becoming digital. European policy requires more and more secure data exchange across borders and across sectors. Nevertheless, interoperability across borders is still a challenge today. There is a need for standards and open flexible technologies and a need to improve the data exchange capabilities of public administrations across Europe.

The Open e-PRIOR project was launched in order to improve the data exchange capabilities of public administrations in the eProcurement domain. e-PRIOR is an operational procurement solution that can be used by any local contracting authority, any local administration in Europe to connect with its suppliers through a Web-service interface based on European standards. It could also be used to send and receive any procurement document from or to suppliers located in other Member States via the PEPPOL network access points.

Open e-PRIOR enables the communication between the public administration and suppliers of any size. It is based on a multi-channel approach with a supplier web portal that can be used by SMEs and individuals/physical persons and a machine to machine communication for big companies that need to send large volumes of procurement documents.

A SME, for instance, could use the supplier portal to enter an invoice and to upload all the attachments needed to justify the invoice, such as a timesheet or pdf report or a word document, and finally send the invoice with the attachments to the local contracting authority. In this way the public administration can connect the SMEs and even physical persons without asking them any investments.

The project started in 2009 with the e-Invoicing module and released in 2010 the e-Request for services, the e-Ordering and the e-Catalogue modules. In 2011 the e-Invoicing self-services module has been delivered on the supplier portal. The project is now working on e-Fulfilment (to manage delivery note and goods receipt) and the e-Sourcing (requests and quotations for goods) module. At the end of 2011 e-PRIOR will cover all the post-awarding processes starting from the request up to invoicing and payment. The project is now moving to the pre-awarding processes. e-PRIOR has about 30 suppliers connected by the end of 2011, 4 service providers are currently interfacing with e-PRIOR and other agencies and DGs of the EC are adopting e-PRIOR.

e-PRIOR can help the local public administrations to take the leap towards eProcurement. In the current context of the economic crisis many local public administrations cannot afford to invest millions in developing or buying eProcurement solutions. By giving them a free open source tool, they can start eProcurement without big investments. Open e-PRIOR can be used as an eProcurement structure to connect with suppliers, as a supplier portal to connect SMEs and individuals, and it can be used as Advanced PEPPOL Access Point to connect with suppliers located in other Member States.

In addition to that e-PRIOR has a dedicated support team that can help any public administration in implementing e-PRIOR and connecting e-PRIOR to its back offices. It can also help service providers and system integrators that work for public administrations in installing e-PRIOR and connecting it to the back offices. In terms of the future evolution of the product, e-PRIOR is now moving to the pre-awarding flows and interoperability with other pre-awarding platforms.

How e-PRIOR is reaching out for Member States? Through conferences, workshops, social media but also through a direct partnership with the service providers and system integrators who can help promoting e-PRIOR at a Member State level. And finally, e-PRIOR started a collaboration with some universities, such as the University of Agder in Norway.

Open e-PRIOR demonstrates interoperability with the PEPPOL network. Open e-PRIOR has been deployed in Greece and Portugal. It has more than 1 000 downloads on OSOR.eu and started cooperation with other Member States, such as Norway, Croatia and Italy.

Benefits of eProcurement are increased efficiency, cost reduction, faster payment, less disputes etc. At the EU-institution level, there are more than 1 million procurement transactions each year and it would be possible to save between 10 and 20 million EUR by using eProcurement. In addition to that, if we can help some hundreds of local public administrations to start with eProcurement in a few years we could save some billions of euros on a European level.

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Q&A

The Q&A two started with two questions from the audience: How does the citizens benefit from public eProcurement? Does eProcurement enables transformational change?

Jeremy Millard, Danish Technological Institute, explained that eProcurement is a complex process. It has to be seen in the context of a wider digitisation, opening up transparency, collaboration of the public sector with the different stakeholders, including citizens. Citizens are important in this context, because they are benefiting from the goods and services purchased. There are eProcurement systems where citizens are invited to comment, e.g., via Facebook sites, where the procurement process with registered suppliers, who are normally private sector, is also open to social entrepreneurs or civil society organizations. Those civil society third sector organizations tend to be even closer to citizens. Opening up in that way and seeing eProcurement as part of a broader opening and transformation of government, especially in times we have now. The danger is of course that if you change too fast in a time of crisis, you may cause even deeper crisis. Politicians have to drive this and involve civil

society organizations or citizens through social media in procurement processes. This should be the way to go.

Angela Russo, CONSIP S.p.A, underlined that the major benefit of eProcurement is definitely unit cost reduction, but there is also increased efficiency and transparency and both are the major benefits for the citizens. This is the real transformation. If you think of the huge amount of information which is downloadable from an eProcurement platform, free of charge: This information can either support a SME supplier to perform a better bid in the next tender, to learn from the mistakes or from the best performances of other suppliers and so to increase future competition, future enlarged participation.

On the other hand, this amount of information and documents can be used for concrete change management and change management means also the introduction of new skills. For example, the recognition of the professionalization of an electronic buyer or an electronic seller. For instance, both professions are not yet recognised in Italy. That would be a real big transformation that would have an impact also on the citizens.

Sara Piller, European Commission, added that one of the clear things an eProcurement system does, is that it brings much more transparency but also much more auditabililty. In doing that and if you are linking this to strategy, eProcurement enables monitoring where your spend is going and promoting other policy goals. It is for instance possible to actually track the use of SMEs, how many SMEs are bidding or winning, or to track green procurement or social criteria. Public eProcurement should be used as a tool, but it also has to be developed through strategy into becoming implicit part of the policy. If we get the transparency and the data sharing, the opportunities are there to do a lot of transformation.

Another question was: Instead of having hundreds of different eProcurement systems, shouldn't there be - in the long term - one single globally used system based on best practises?

Ms Piller, European Commission, stressed that in the issue in Europe is that there are so many different legal basis. The only way to have a system that fits all of that would be to harmonize all the legal basis and this is not very likely. However, it is important to learn from what other people are doing and to share best practices. Furthermore, within the framework of developing certain standards, we will actually converge to a certain extend.

Paulo Magina, ANCP, answered that from the supplier side it is quite complex because they have to manage all these different platforms. For this reason Portugal is trying to improve the legal framework and to have a common basis in terms of screens or steps for each platform. The idea is to present a level playing field to suppliers, in order to enable all of them to work in different kind of platforms.

Antonio Pellicci, IBM, mentioned a concrete example in Europe: In Germany, there are several platforms, but they have created a single layer that harmonized the different platforms into a single one. The technology is there to solve this kind of problem. You can still maintain a single autonomous eProcurement platform, but you can aggregate and create a layer and enable the supplier to interact with a single front end.

A representative from DG DIGIT commented that the answer is not having one system, there is no one-size-fits-all solution. The answer to this is interoperability and this is where we have to strive to. It is important to make sure that the suppliers can work with different systems, so that the systems can interoperate and service providers can easily access platforms by different customers and vice versa.

Another question referred to innovative procurement. Is it possible to combine innovative procurement with eProcurement?

Mr Millard, Danish Technological Institute, stressed that when the public sector buys so much as it does, it is in the unique position to impose certain standards and conditions. Not just technical standards, but also standards in the terms of social economic outcomes at once. The collective power of public purchasing could be much better be used to drive for to certain goals, e.g., better IT services for elderly people living at their own homes, supporting certain SMEs or social innovators etc. Thus, we arrange the terms of the eProcurment contracts to fit that sort of goals, which are normally political goals. That has been done as much as it could be when looking to developing green technologies.

Mr Pelliccia, IBM, explained that the most expert concerning the good or service that you are buying is the supplier. They are able to innovate, they know the market, they know the product and they know the technology behind. Innovation definitely should come from the supplier market. The problem is that you need someone driving and generating innovation. One should not to put together eProcurement and innovation. eProcurement is a tool, innovation is a process. What really is needed is a change in the policy. Here, the policy can make the difference in terms of pre-commercial agreements -- the way to interact with the supplier base and to stimulate innovation from suppliers. This has to be regulated by easily applicable rules.

Angela Russo, CONSIP, commented on this by stressing that innovation often comes from the suppliers, but it is not always like that. If you have a central procurement body, where skilled people are able to stimulate innovation, there is something in-between the suppler and contracting authority. The duty of this central procurement body is to stimulate not only money saving, dematerialisation and efficiency, but also innovation.

The solution s to create a collaborative environment, a collaborative procurement. Such collaborative procurement means an environment in which all the stakeholders have a value and a role. Nobody is dictating anything, but everyone is participating and contributing to making procurement money saving, efficiency, transparency, introducing innovations, involving citizens and stimulating the economy. This works only if each stakeholder plays his or her role and the role of the contracting authorities and the role of the suppliers is also to suggest innovative goods and services.

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The session's **chair** and **moderator**, **HUGO KERSCHOT, Managing Director, IS-Practice**, Belgium, warmly welcomed the panellists and participants and introduced the overall topic of this keynote session focussing on cloud computing and open data.

KAREL DE VRIENDT, Advisor to the Director-General, DG INFOMATICS, European Commission, provided in a very stimulating way, a captivating presentation on

Cloud computing and the European Commission

The NIST (National Institute of Standards and Technology) defines cloud computing as a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. This cloud model promotes availability and is composed of five essential characteristics, three service models (cloud software/ platform/ infrastructure as a service), and four deployment models (private, community, public or hybrid cloud).

Many people compare what is happening with cloud computing to what happened with electricity generation some time ago, where at first every industry had to generate its own power and now everybody takes it from the electricity grid and you should be stupid not to do so. However, it seems that Google is thinking about its own electricity generating plants in order to be able to provide grid and cloud computing to others. So, it is maybe not that stupid from time to time not to centralize everything and to decentralise certain things.

There are a number of challenges going along with cloud computing. There is the problem of dependability. For instance, Amazon and Microsoft had problems with their big cloud data centres in summer this year. There is the issue of security and privacy. What happens with the data when they are in the cloud? There are a number of legal uncertainties, especially in the EU – an area composed of different countries. There is the issue of "who controls the cloud", and there is the issue of interoperability and standards.

In the Digital Agenda for Europe the Commission said that "Europe […] should develop an EU-wide strategy on 'cloud computing' notably for government and science." The development of this vision of cloud computing is ongoing. There is a dialogue with industry stakeholders who are expected to finalize their report soon. There has been, over the summer, a very successful public consultation and the results are currently being analysed. The strategy is announced for 2012.

As regards public administrations and cloud computing, an important driver is cost reduction. It is the same tendency as it was 20 years ago in the context of outsourcing. 5 years ago, everybody in government spoke about shared services that would lower the cost. Today, it is going to the cloud and a number of countries have said that you must have a public cloud first and this will cost. There is the shift from capex to opex, so there is a temporally cost

reduction – nobody knows if it will be a lasting one. Total cost of ownership is a nice topic to discuss, but you can only speak about historical cost of ownership and it is very difficult to predict the future there.

Administrations are reluctant to use public cloud because of security issues: “If my data are in the cloud, who is looking to my data?” “If my data are in the cloud somewhere on the globe, who is looking to my data?” The question is whether we can require cloud computing, but at the same time we want our data keep in our home countries. There are of course the issues of privacy legislation and control.

What is happening today is that in many cases the government cloud is a natural evolution (relabeling) of the shared services concept. There are government App stores and shared data centres for groups of governments – there are all sorts of community clouds that are built in different countries.

There are also a number of issues in the context of procurement: There is a lack of standards, there is an immature market. So there is a high potential either to have vendors that will disappear over the time or to have vendor lock-in. How to buy cloud computing services and to be sure to get the data back at the end to go elsewhere? And how to buy cloud computing services in such a way that it is possible to follow the way of rapidly changing markets?

The EC together with other institution is thinking about clouds, is looking at clouds, is considering what to do – but has not yet said that every administration should have a public cloud first and something in the cloud next year and something more the year after. The EC is currently disusing the possibility of having a kind of community cloud for institutions.

GAETANO SANTUCCI, Manager Competence Center Unit, CONSIP S.p.A, Italy, [www.consip.it], delivered a most illuminating keynote speech on

State and Perspective of Cloud Computing in Italy

The adoption of cloud computing in the Italian public administration is just at the beginning and the experiences are still limited and usually concern experimental projects. At the moment Italy has a huge number of little and middle sized data centres managed often in an uncoordinated manner. This situation implies high costs and low efficiency. The future solution could be cloud computing, but to get the benefits to the change it is very important to investigate the specific requirements and choose the right model.

A survey concerning the ICT state and perspective in the Italian government has been recently carried out, touching also cloud computing. The majority of the administrations is convinced to adopt cloud services in the short or middle term, whereas local governments and municipalities are not yet ready to join this approach.

Push factors are the improved ability to meet the needs of the institutions, rationalisation and overall cost reduction and access to expertise. Barriers to the adoption of cloud services are issues such as security and data privacy, standards, lack of case histories, the unique offer and suppliers are not yet adequate, stability pact (capex to opex), lack of internal expertise or interest and the difficulty of adapting processes.

Italy has a law called the Code of the Digital Administrations that is also a kind of a roadmap of the Italian public administration towards innovation and dematerialization of procedures. The code includes a definition of the connectivity and cooperation network among public administrations named PCS (Public Connectivity System). The PCS is a set of infrastructures and technical rules directed to develop, share, integrate and spread information assets of the public administrations. This approach was implemented some years ago choosing a service model in which all Ministries and other public agencies adopt the services delivered by the PCS for setting up the network and security services.

The PCS model is an ideal basis to develop a cloud oriented system. In fact, as a service model, the PCS is based on a legal framework while it is implemented with the standard infrastructure. In order to evolve these services on the cloud, it is necessary to create the right conditions to add a new technology layer. In this renewed infrastructural context, public administrations will be able to acquire the cloud services by means of general contracts based on a multi-provider competitive situation in a complete interoperable environment.

Italy has launched the operation “Open Government” which has the goal to create the open Italian public administration. This operation is aiming at the renewal of the Italian public administration which is facing a crisis -- not only at an economic level, but also concerning its identity and role -- and must find new business models to fulfil its assignment. The strategy is based on three major projects: PA2.0, G-Cloud and Open Data.

Shortly regarding G-Cloud, the focus will be the implementation of cloud computing with the features mentioned earlier as the evolution of the PCS. Regarding Open Data, the aim is to make public data really free and available in open formats in order to facilitate social control and enable the development of applications that make life easier for citizens and businesses. To support the use of these data the project Apps for Italy has developed a context open to citizens, associations, companies and community of developers. For PA 2.0 the object is sharing and cooperation. The project aims to achieve an administration where people are more committed.

In conclusion, G-Cloud is the tool to develop Open Data and at the same time Open Data and PA 2.0 are the key elements for the implementation of G-Cloud.

MASAHIRO YOSHIZAKI, Director-General for Policy Evaluation, Minister’s Secretariat, Ministry of Internal Affairs and Communications, Japan, provided an excellent and captivating overview on

Cloud-related Initiatives in Japan

Up to now, information processing by computers has evolved by repeating centralization and distribution. However, the current trend is toward a “slight centralization.” That is called “Cloud Computing.” Clouds are positioned between distributed and centralised systems.

Even in Japan, the popularisation of cloud services is progressing rapidly. The cloud services market was worth 4.5 billion USD in 2010. It is expected to increase more than six times in size to reach approximately 28 billion USD in 2015.

Cloud technology is spreading due to its advantages. The major point is that the demerits of owning infrastructure or application software are resolved: First, even if users posses facilities they are not necessarily always being used. Therefore the facilities that are not

being used are wasted. This issue is resolved. Second, there are limits in the capacity of a users' facility to cope with demand: It is conceivable that the facility may not be able to accommodate a sudden and unexpected increase. This is not a problem with cloud computing. Third, if demand grows suddenly it may be impossible for users to expand their own facilities rapidly enough, but cloud technology can accommodate this demand. Fourth, if users own facilities in accordance with peak demand, that facility will be wasted in off-seasons. However, with cloud technology, this waste can be eliminated. Fifth, if an emergency disaster occurs and users' own facility fail or if there is a power outage, the functioning will stop. Cloud computing was very helpful in the recent Japanese earthquake.

Sixth, with regards to users own facilities, users must cope with all security issues alone. With cloud technology it is possible to leave matters to technologies and this is good news, especially for SMEs. With cloud services it is possible for the user to use just the needed amount at the needed time of necessary computer resources by the network. By using cloud services it is possible for users to resolve the demerits occurring when they possess the resources.

However, there are issues to be resolved: First, since users do not own the facilities, the system has become a kind of black box and users can have the impression to be put at the mercy of providers with regard to the system configuration of the service they use. Second, if the service provider stops providing services, the company that does not own their own facilities will be forced to stop their activities immediately. Third, since user information is suddenly managed in facilities possessed by providers, there is a risk of being easily targeted by hacker attacks. Fourth, there is also the risk that information may leak from facilities of the providers. Fifths, if for some reason the communication between the facility of the providers and the users is interrupted, the user will not be able to get access to information and company activity will be forced to stop.

In short, the main arguments for cloud computing are related to availability, reliability, performance, scalability, support, data management, security and cost.

Cloud services are extremely useful and therefore the Japanese Government is carrying out a number of initiatives in order to foster cloud technology. The most recent initiatives are: First, the formulation of a "Guide for Protection of Cloud Service Users and Securing of Compliance"; second, the standardization of technical requirements required in inter-cloud collaboration; and third, the implementation of an international dialogue on cloud computing.

Concerning cloud computing, open data distribution across borders is important, and discussion with many countries is vital for the promotion of cloud computing. Such discussions provide the possibility to exchange views and best practices related to cloud services – and given the benefits of cloud services mentioned above, such as effective use of facilities and the response to unexpected increases in demand, cloud services can be considered to become even more important in the future. Therefore, it is important to promote cloud services at a global level.

AO (LEO) SUN, President of Brussels Office and European Affairs Dept, Huawei Technologies, [www.huawei.com], provided an excellent and very interesting insight into

Leadership beyond the Cloud

Internally, Huawei did a lot of thinking and discussions about cloud computing and today, we dare not to say we have a clear vision of clouds. There are two things that are quite certain about clouds: 1) It remains unclear what challenges the cloud will bring and 2) it will come, very soon and nobody will stop it.

The cloud is very fast growing market and according to some reports this market is growing 30 to 50% every year. Some reports are expecting that 2020 the global market will be more than 1 trillion. This seems to be a rather moderate focus.

Many people have seen the movie “2012” which is about the end of the world. The information Tsunami in the digital society will be not less important than the tsunami described in the film – it will be powerful and overwhelming. That is the challenge we are facing today and we all would like to see how to prepare for that.

How to succeed? We will have to get some experience from the past. The last two decades were the real golden area for the Internet and telecommunication industry. One of the success factors is the openness and standards of the telecommunications industry. In the last two decades, the greatest invention and the product for telecom and the Information Society is not the powerful radio based station, not fibre networks, and not even all these different types of handsets, but it is the SIM card: Thanks to the SIM card users can easily and freely move from one network to another and chose a different QoS, different tariff plans and encourage the industry into a very open and competitive playground. Behind this SIM card, there are thousands of companies investing in the networks, in the components, in the technologies of software applications and chipsets and create a huge booming industry and millions of jobs. And that is the magic of open standards.

It is very difficult for companies to decide how to invest in the cloud in terms of technology and in terms of business model, because it is like a kind of a gamble with the uncertainty which stake will win the battle and this is really slowing down investments and technology evolutions.

Due to this situation, the business model for the cloud it is not really clear for the private sector – because at the end the benefits are uncertain. Who will continuously invest in the network, invest in the infrastructures and create a fair and sustainable ecosystem? This is another very important challenge.

Huawei encourages the entire industry in the different segments of the value chain to work together and to push standardization as this is really the base for open platforms. And the openness should not only be at the technical and standardization level but also at the minds level, because this challenge is really overwhelming and especially for all types of social issues which have not really been affected by the past technologies. Today, we need a deeper and wider cooperation among industries at a more global scale.

To conclude: While challenges and impacts remain unclear, it is certain that the cloud will come. As we are entering in a stage where we discuss strategies and visions, we need to uphold cooperation among the players and push open standards.

JOHN VASSALLO, Vice-President EU Affairs, Microsoft EMEA, [www.microsoft.eu], made a bright keynote presentation on

Delivering the Cloud to Society. A Look upon SMEs

We have to look back to look forward. The biggest development has been the PC that really brought 30-40% productivity gain; we now face the next leap with cloud computing, that once again will bring a huge productivity leap. The public sector specifically will gain most, but the private sector will as well. ,

It will be a solution to many of our social issues that the deployment of cloud computing and the majority of its issues gets resolved through better regulation and cooperation with stakeholders. That we can, for instance, resolve issues relative to e-Health/ the health sector, which is one of the most costly and ever growing sectors because of our aging population; the education system, where we can do much more with much less by linking up schools and pupils not only within a country but on a global basis; by applications of embedded technology and linking it to the cloud for environment, transport or other areas; and of course enterprises, business that are already moving to the cloud.

What is important now is to define priorities and to advocate a policy that makes the deployment simpler. There is still mistrust, fear and worries because we do not have resolved the issues. Cloud computing can act as a medicine that gradually improves the condition of the European economy and affects societal challenges in many ways. Of importance and interest to enterprises is that moving from servers to the cloud cuts capital expenditure whilst improving the services provided. A recent study on the economics of cloud computing found that the cloud can improve efficiencies and increase cost savings by up to 80% for many users over time. The social sectors mentioned above can also improve thanks to the cloud.

Microsoft is currently involved in an initiative called “From IT to ET”. It is about moving from information technology to enabling technology. This is a multi-stakeholder advocacy study that is directed at guiding investments into technology as a key enabler for market growth and societal benefits in three broad topics: eHealth, environment and eEducation – all of which are very much public sector issues.

The initial findings of the study demonstrate that advantages include energy reductions. If just 80% of SMEs move just two functions to the cloud, you will save about 400 000 cars of the road in average in the carbon capturing. The increased data mobility and accessibility in the health care system is proven.

The cloud is however especially useful for SMEs. In Europe alone Microsoft has approximately 150 000 partners to generate 120 billion EUR, employ 40% of the total ICT workforce in Europe and originate 57% of tax revenues from the European ICT industry.

These small companies which together are looking forward to us to find solutions for enabling them to move faster to the cloud are fuel for the European economy. And enabling them to deploy will be one of the best things to do to solve some the present economic crisis. The faster the European Commission provides an approach for the stakeholders to follow, the better.

What do SMEs need to move to the cloud? According to SMEs, they need cuts in the IT "red tape" because that inhibits growth. Expenditures previously on items like infrastructure for them can be redirected into bottom line activity, into research and innovation. Open data will allow them to access the data. If they get access to the existing data which can be found today in government depositories, they think they can create new applications and they even promised to some extend to the DG for SMEs of the Commission recently, that if this were to happen, they could even add one employee each (businesses with 5, 10 or 15 employees). There are 23 million SMEs in Europe, and even if only half of them succeed we would added almost 12 million jobs!

A study in the UK showed that almost 1.2 billion EUR is tied up in balance sheets and costs for infrastructural maintenance for the present systems in SMEs. The question of releasing money from balance sheets to put it into investments for growth is essential. Cloud implementation not only frees up money for existing companies, but also opens the door for new companies to emerge. In Ireland, building on clouds has created 2 000 new non-IT SMEs and 11 000 jobs. The Irish economy, now going to a difficult time, had over the past three years really concentrated on cloud computing as a topic. Therefore one of Microsoft's cloud centers is in Ireland.

Microsoft's newest partner Skype is a good example: Skype was born in the cloud and bought a cost effective way to make long-distance calls around the world without having to maintain any infrastructure. It is a success story that one if not most of the other European countries should be able to emulate.

We have the obligation to remove the barriers to the cloud. It is absolutely a policy priority for the EU to remove the existing barriers. Doing so would switch on the competitiveness of the singe market and enable enterprises to create solutions with much more ease. A lot can be gained from making this switch. Of course, that can not and will not happen if SMEs will not have full and accurate information, particularly with regards to the security issues, because many fear still that data is at risk in the cloud. There is a joined responsibility to reassure potential users, to better regulation, to more security and to create this element of trust.

The benefits of cloud computing and the strategies the EU will consider are not limited to Europe, but concerns a global call for action. A US report outlines major recommendations for smoother cloud deployment in the US. The focus of these recommendations are on issues like security, identity management, privacy, data access, transparency and data portability. We should reflect together on the global vision of cloud computing and the role the stakeholders from large and small companies to governments can play in maximizing this potential.

GEERT MAREELS, eGov Manager, Flemish Government, Belgium, delivered a noteworthy presentation on

Beyond Digitizing Bureaucracy:
Use ICT to Realize the Goals of Government

The Citadel Statement is a great movement that still goes on. It aims to tell European and National decision makers what local governments need to successfully implement eGovernment services. 180 people from different EU Member States have worked together on this statement from the local municipalities. Municipalities are very important as they are the first place citizens go to – but nobody helps them. While large cities are rich enough to do what they need to do, smaller cities and villages do not have the resources or the experts to successfully implement eGovernment.

Based on an open broad consultation across Europe, five topics where European and national decision makers can provide tangible support to improve local eGovernment have been identified:

The first one is " common architecture, shared services and standards" to make it possible to local governments to work together and also to collaborate, in a cost effective manner, with their regions, national states and even Europe. For instance, Flanders has build a number of applications – these applications have been built once and were given to the 308 communities for free.

Open data, transparency and personal rights was also high on the agenda. An idea that come up in this context was also to have a minimum list of what has to be opened. While the Ministers for eGovernment in Malmö strongly supported the idea of open data, there is still a need for a political push to really open data.

The current open data sites mainly contains data that are open since many years. It is a start but we should do better. The first push could come from the citizens themselves: If we enable them to make applications on open data and convince them of the usefulness of these applications, there will be a popular demand to open data and then, the civil servants can not resist.

In the spirit of the Citadel Statement, Citadel on the Move is a European project aiming to empower citizens using open data to create "smart" mobile applications that can be shared across Europe's cities. Among the partners are the cities of Manchester, Issy-les-Moulineaux, Athens and Gent. The development of citizen-generated mobile applications that can be used and shared in any European city requires some sort of standardization.

What has been done in the past in eGovernment was to digitalize bureaucracy. We used the Internet to inform people about their rights and to put old paper forms in a digitised form online. A (bit provoking) question in this context is "If GPS had existed in 1830, would we have built all those road signs?" It will be important to use modern technology to achieve public goals, and public goals is not a well running administration but good education, mobility etc. Today, it is possible to give people their rights without having them to beg for them, but to automatically know whether they are unemployed etc. The call for minimal data storage of some important EU Member States in the context of the review of the new data protection regulation is a real concern for such automatic data.

ERIK R. VAN ZUUREN, Director Deloitte Enterprise Risk Services, Belgium, [www.deloitte.com], delivered an inspiring presentation on

Online/Cloud Services
Trust Challenges & eIdentity Aspects

The more you learn, the more you get experienced, the better you start to understand the subjects, but you also start to understand more and more the problems within the subjects, so you get more and more troubles – so why should you investigate any further, because you only make your life more difficult every day.

There are some specific aspects to look at, when putting different services in the cloud:

People still often look at cloud projects as they were outsourcing projects: “We need to downgrade our Capex and don’t worry about the rest”.

An important aspect in the context of cloud computing is data control and ownership. When putting data into a cloud or any provider, people want to be sure that they still own the data and can access them at any time. They do not want their data leaked by accident or viewed, accessed, or used without their knowledge.

In the context of open data, there is some other interesting aspect regarding data control and ownership: Who is allowed to use the data? Who is allowed to enrich the data and what can be done with the data? People want to know what happens with their data and be sure that the data are not misused or misrepresented.

Availability and reliability: What are you going to do in cases of a crisis? How is reliability, access, and availability "guaranteed" by cloud services providers?

Another question is, what will you do when your cloud provider has to cease activity? In certain cases you can not live any more without your cloud provider!

Other elements when going into the cloud are legal compliance and jurisdiction: If my data is somewhere in the cloud and something goes wrong: Who to sew in the clouds? How to solve the legal issues?

Auditing and monitoring: Are you ready to apply enterprise risk management and controls, and auditing and monitoring practices to applications and data residing in cloud environments? Ensure that you get assurance!

These are not issues to make people afraid about cloud computing. There are some great cloud services, but people do not have to forget that when going into the cloud, there is a checklist to get through.

Online and cloud services need to be sustainable and will only be accepted if they can be fully trusted by all parties.

When looking at sustainability and reliability, this aspect depends on from which perspective you look at it: For instance, information service providers: If I get information, e.g., online data from governments or the private institution, how can I be sure that I am talking to the right source of information, and that this source has timely and quality information. And how the information service provider can be sure that they share the data with the right parties. To

do that, “trust service” providers are needed, like service providers who assert identities, and of course there are the end-users who have to trust this service.

Sustainability requires truly value adding services and clear benefits, such as time or quality; user friendliness – the service must be usable anywhere, at any time and via any device; and reliability, solidity achieved by trust, governance, the adequate architecture and standards and the nature of the operations. Major questions in the context of trust are: What is the perception of security? Is there some sort of privacy? What about the presence of quality seals, the existence of assurance levels, and the presence of legal certainty?

Trust and sustainability are important topics, which are different from different perspectives. Quality and user friendliness are most important in this context.

Two further aspects to be highlighted are eIdentity and eAuthentication: If you want to provide information in the cloud, trusted identity is of importance. That again has two dynamics: on one hand the end-user, typically the citizen you are providing information to or the organisation that needs access to its own data, but on the other hand you want to be sure that you are taking to the right service information provider.

With regards to eIdentity and eAuthentication, any access should be subject to the principles of “need-to-know”, “need-to-have” in combination with a sufficiently strong proof of “identity” and relevant “characteristics” or “mandate”.

PAUL TIMMERS, Director Directorate H: ICT addressing Societal Challenges, DG INFSO, European Commission, bridged issues of technology, innovation and societal challenges and brilliantly expanded on the topic:

Changing Perspectives through Innovation

Today’s times are certainly times of a lot of uncertainty and the word “crisis” is probably one of those that is most used. Europe feels that enormous pressure of the uncertainty and the enormous pressure of what happening in the financial world. One of those challenges in terms of the economic situation is that budgets cuts are everywhere, everywhere stock markets, salaries, public and private budgets are going down while retirement ages are increasing.

What if we would ask ourselves the question “If the economy asks for a 20% budget reduction what would you do?”. “What would you do in times of crisis?” The audience was asked to participate in this poll and to send an SMS by choosing one of the following four options: Option one being ”do what I do best, with what I have”. This could hold for businesses and governments. Let’s not innovate, let’s not change now, it is not the time for it – let’s just continue what we do.

A second option is “block new “fancy” investments in health care and social care”. Health and social care is one of the big challenges because of the demographic aging. Cost are very rapidly rising and it would be possible to save a lot of money by not investing further in that area.

The third would be “refocus on “standard” procedures for government administration”. Continue with standard procedures instead of modernizing and renewing the government or investing in online government.

And finally, giving the rising energy costs, “cutting energy consumption by imposing limits or higher tariffs” – even if that will have to some degree a social cost, because people will need to use energy and those which are socially disadvantaged will be hit harder in financial terms.

Most people voted ”do what I do best, with what I have”, so focus on what I have right now. In a certain sense that would mean “let’s just sit and wait what will happen”. Much less favoured was “blocking investments in health care” and quite a number of people seem to consider “online government as a luxury”. “Energy savings” got the third place in terms of votes.

How to analyse this? What if we would go for another option. What if we would not have seen it all? Could we actually say that, if we invest in innovation we would no longer count that always as a cost but really as an investment? This is a typical argument that is difficult to make politicians digest to especially in traditional areas where the use of IT is considered much more as a cost and where the long-term perspective to take is that investments in innovation are indeed an option for the future.

Would it be so that we can use ICT in an innovative way and at the same time reduce costs rather than increase them? And again, can we put ICT to work in a smarter way so that cost will decrease and at the same time we deliver better quality of life or better services? What if we would combine ICT with process reorganization and get many more benefits, such as increased productivity and growth. This is a typical trend but still underused in Europe. Still Europe’s organizations seem to be slower to adapt and governments are somewhat one example of that - and still it is known from other economic sectors that you get the largest benefits of ICT if you also reorganize. And what if we would have only discovered the tip of the innovation iceberg, with more to come and thanks to ICT?

There are various technology opportunities and some of the main drivers are linked to the transition from a supply-driven innovation based on launching new products to market, to society-led innovation based on broad use and co-creation; from an industrial to an empowerment perspective.

And technologies can also enable us to do more with less. For example, ICT can lead to significant energy savings. A European project (BeWare) for instance is about involving citizens in managing their own energy use through serious games, with real effects on energy management patterns.

ICT also help us make more sense of data. Let us assume Open Data is already there: imagine what could be the substantial gains for users, for example, being engaged in collective policy making or problem solving using policy modelling tools?

What might be missing is not only that new innovative approach to solve big societal challenges, but also a bridge to innovation. One of those bridges is the European Innovation Partnership on Active and Healthy Ageing, where the EU is trying to bring not only the components, but also the various actors together in order to create a multi-stakeholder approach to unchain innovation for a more sustainable health and social care in Europe (also thanks to ICT). A difficult venture, but perhaps it is one of Europe’s strength to put people together and to develop a shared vision.

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Challenges for Open Innovation

The session was **chaired by BROR SALMELIN, Adviser to the Director ICT addressing Societal Challenges, DG INFSO, European Commission** and moderated by **JAY GILLETTE, Professor, Center for Information and Communication Science, Ball State University; Secretary Digital Policy Institute; Advisory Council Pacific Telecommunications Council**, USA

The session's **chair**, **BROR SALMELIN, Adviser to the Director ICT addressing Societal Challenges, DG INFSO, European Commission,** provided an excellent insight in

Innovation in Knowledge Society- New Paradigms for Success!

When highlighting the role of innovation in the knowledge society we need to look at new paradigms for success. Of course one has also to look at the political frameworks and again, the word 'smart' is everywhere. The challenge is to look at what is smart and how to link this smartness to innovation.

It is very important to understand that innovation creates value only when things happen -- when the idea offering is meeting the end-user. You can have whatever ideas in the air but if it does not meet the end-user, where is the value? One very important message about open innovation is to look at that from 'making things to happen'.

But, how to make things to happen? We need to look at the societal fabric emerging around us at the same time. Not only technology, we need to have a mash-up of all that and therefore we need to look at entirely new innovation paradigms and catalysing them: user centricity, openness, more and more experimental courage to bring the innovation out to the real world, to make innovation processes much more successful and rapid.

What we need is courage to make things happen. It is so easy to hide behind words of crisis. Look beyond crisis and see what are the opportunities. We need to look beyond the fog, we need to drive forward – we can not stop and just wait. Of course, if looking at the future, it is a question mark, but it is easer to live the future if you are creating it. So, at least we could try to create something together with the societal fabric technology -- again requiring both the vision and real world things to happen.

The Selusi project came with interesting results on social enterprises, enterprises between the societal fabric and the traditional ones. The study actually proved that those social enterprises are very important when looking at the creation of spikes, of knowledge, of new innovation. They act as magnets, probably because of the leadership character of the people running these social enterprises -- social enterprises in the context of profit-making (decent profit-making social enterprises), not the traditional non-profit ones.

The world is not flat in knowledge society. It is really spiky. Talent attracts talent and this is important to notice in innovation. How do we make talent attracting talent and making that talent to again lead to changes in the world. To really have the courage to take concrete steps.

Value is created in whatever way is appropriate and is no longer dictated by organisational relations and boundaries. How to create this kind of fluid, frictionless frameworks where we can have a mash-up of different kind of talents?

The Selusi study showed that when looking at the new types of enterprises, micro multinational and also social enterprises, they are really proven to be the thought leaders. Where do we have a room for these new enterprises? Can we create frameworks where a common win-win game is possible? Moreover, when looking at this creativity, most of these enterprises are in innovation related to services.

We need to look at how to make from the traditional needs something which we can take as a seed for new innovation processes. It is not anymore a question of basic needs, but it is about creativity, it is about self-esteem, but also networking/ belonging to a community. This is of course coming from individuals, but can this be turned into something where we are creating the societal fabric at the same time as we are creating new businesses? It is not anymore about the traditional cost saving. We can do the same for organizations.

In the context of how do the new entrepreneurship reflect to these values, we are moving from the traditional values of power to universalism, self-direction and even stimulation. Can we use this more as driver for innovation? Based on the Selusi study, we see how the companies/ entrepreneurs are shifting in values depending on their innovativeness. There is a very strong correlation towards innovation networks, away from the open innovation.

A cooking pot best illustrates the uncontrollability. We need to create a 'soup', a mash-up where we have all the ingredients and where the public sector has the role for pushing the framework for open innovation. But we also need the thought leaders, those who have courage -- who are the masterchefs of the soup.

The **moderator** of this session, **JAY GILLETTE, Professor, Center for Information and Communication Science, Ball State University; Secretary Digital Policy Institute; Advisory Council Pacific Telecommunications Council**, USA, [http://cms.bsu.edu/Academics/CentersandInstitutes/DigitalPolicy.aspx], warmly welcomed the participants and set the scene for the following presentations:

The session is on 'Open Innovation'. Innovation in Latin means 'to bring in the new' (in = in, novus = new). It is not enough just to encounter the new, but actually to bring it in, to carry in the new. The term "open innovation" comes from a seminal book by Henry Chesbrough, Professor at the University of California at Berkley : "Open Innovation: The New Imperative for Creating and Profiting from Technology".

A seminal quote from Chesbrough's book: ". . . a new vision of the innovation process. This vision eagerly seeks external knowledge and ideas, even as it nurtures internal ones. It utilizes valuable ideas from whatever source in advancing a company's own business, and it places the company's own ideas in other companies' businesses."

However, the Europeans are ahead of the Americans now in this idea. As the American writer Mark Twain put it: “Necessity is the mother of taking chances”. The Europeans, out of necessity, are ahead in open innovation.

A message received last year from Bror Salmelin and published in a leading technical journal was: “We would like strongly to communicate a more modern view on open innovation. We need to go far beyond, towards crowd sourcing, co-creativity and collaborative open innovation ecosystems.”

One can say that this session has one of the best themes in the Global Forum. The session ‘challenges for open innovation’ will discuss problems or challenges of innovation, and ideas for solutions. A wise person once said: To be human is to solve problems. Your job is to solve problems. We are on earth to solve problems.

The session will help to look on problems as challenges and then it is the job all of us together to solve these problem. This reflects the essence of scientific research: Hypotheses is a preliminary understanding -- it is not an educated guess. It is then subjected to challenges or tests in order to be then reformulated as theory or understanding.

A quote to set the theme: Innovation is like Creative design, which “seems more to be a matter of developing and refining together both the formulation of the problem and ideas for its solution, with constant iteration of analysis, synthesis and evaluation processes between the two ‘spaces’—problem and solution.” (Nigel Cross and Kees Dorst, cited in Brooks, The Design of Design: Essays from a Computer Scientist, 2010, p. 51).

BOSCO EDUARDO FERNANDES, Head of Corporate Research, Huawei European Research Centre, Germany, [http://www.huawei.com], shared some very interesting thoughts with the audience:

“Open Innovation – Open Minds” is the Key to Success

Open innovation has something to do with open minds and this is what leads to the key of success. We need to talk about problems, challenges and solutions. Where there is a problem, there is a solution. The challenge is what you need to overcome - the problem - to find the solution. However, when you are trying to find the solution and to make it happen, you automatically face a number of challenges.

It was important for Huawai as a new company and latecomer in this field to come up with innovative ideas. Basically what the company did when entering the telecom field, it used its customers to help out with their needs. At the end of the day, it proved to be that the customers were the best innovators the company ever had.

It was a learning lesson. From this point on, Huawai moved in technology and most innovation done in this period of time was in technologies. However, the transformation to the Digital Society called for radical innovation change in many different areas, especially in the areas of network architectures. Clouds will have an important impact on this whole environment. Looking at this from a technology perspective, the functionalities and how much of this functionality will be taken over in clouds, while the cross boundary platforms need to support a lot of this, is one of the major challenges. Of course, in an environment where we have no understanding of the policies and the regulatory issues, especially the legal area. So, at the end of the day, we are looking at low cost leadership through disruptive architectures, rather than merely via component engineering and value chain techniques.

Huawai took a rather different approach to get to open innovation. The company was very careful what it actually needed and started with a lot of innovative projects right from the very beginning, within innovation and research programs. This was the incubation time to get ideas and pushed Huawai forward. The company also looked at the academia and collaboration with different universities. This led to a lot of open innovation in many different areas, bringing in new ideas, to help Huawai move out into a different environment. The global and national research programs were very important for Huawai. But also open policy issues towards standards.

The real challenges that Huawai has been seeing is that there are thousands of great ideas around, generated every minute by many scientists and young students. The problem that is really collecting these ideas and making the best out of it, to meet many of these new globalized and larger solutions that we are looking out for. To a large extend it is not just about technology, it is about putting all these great ideas together to be able to utilize when the innovative technologies comes together, be it through ICT or whatever.

Last but not least, innovation together with partners is extremely important to Huawai.

MATHEW HEIM, Senior Director and Counsel, Qualcomm European Government Affairs, [www.qualcomm.com], provided a noteworthy and enthusiastic presentation on the company's view on open innovation.

An Example of an Open Innovation Company

Professor Henry Chesbrough, mentioned earlier, used Qualcomm in his seminal work as an example of an open innovation company. When the company was first set up, however, it pre-dated the notion of open innovation. It was set up by a handful of semi-retired professors who came across a superlative idea for the transfer of data across the airwaves. The innovation was so disruptive and so novel that one scientist thought the technology defied the laws of physics.

Theirs was a great idea, but the core notion of innovation is getting something from theory into the market and into practice. However, the nature of the inventions at the core of w are not devices, not gadgets nor a product just to be put on the market. Because the innovations were in the communications technology field, a number of other players are required to get involved to make it a success and therefore had to convince others to get involved. And these big bets and in order to convince them Qualcomm, a very small company at the time, decided to create its own little ecosystem -- that is to say, develop the technology, put the technology on chipsets, get a network infrastructure deployed and manufacture handsets. And only once it was demonstrated that technology was attractive, other players came on board. It was quite natural as partners would not like to take a risk until they saw that the technology delivered.

However, Qualcomm realized very fast that the company was very good at developing technology and designing chipsets but far less good at everything else. As a result, Qualcomm divested the handset business and the infrastructure business to companies that were far better at delivering value in those businesses.

The point here is that business model neutrality and regulatory neutrality is extremely important. Companies like Qualcomm, who are very good at one thing, should not be forced by a regulatory structure to do things that they were not particularly good in. This is not were the value lies. It is clear that one cannot mandate innovation; want to create a situation were innovation can be born.

The second important element relates to the Intellectual Property Right system. A small company with a good idea that is negotiating with large companies has to be able to protect its assets and to negotiate with them on equal terms.

Investors will not be willing to take a risk unless they know that if their investment are successful they can get return on investments made . It is only because of the well-functioning patent system that Qualcomm, at a very young age, was able to not only negotiate with larger players and get its technology on the market but also to get a return on investment.

The business model of Qualcomm is very simple: In return for license fees and for sales of chipsets the company reinvests in R&D about 20% of revenues annually. In the 26 years of Qualcomm's existence it has been over 16 billion USD. Most investors will not put up that amount of money unless there is a system where successful R&D projects reap reward.

The third point relates to knowledge transfer. Qualcomm relies on others to implement its technology and therefore a well-functioning knowledge transfer market is critical. But of course the transfer of knowledge is not just access to patents and patent claims but also to know how.

The last point is in relation to standardization. Certainly in the technology field most technologies are standardized. We are going through revue the standardisation regulation at the European level and if one takes the principles put forward earlier, such as business model neutrality and the ability to get return on investment for risky R&D, as well as recognising the risky nature of standardization, the draft standardization regulation captures those notions as it its business model neutral and needs to encourage technological contributions to standardization efforts and the incentivising of investment in this area.

CARL WICKMAN, Director & Head of Services & ICT Division, VINNOVA, Sweden, provided several most valuable insights to public sector experiences of supporting open innovation and how this can help to support future growth.

Public Sector Support for Open Innovation

Vinnova is a governmental agency for innovation, investing in innovation traditionally via call for proposals and by giving grants to different projects etc. In this process of addressing societal challenges, Vinnova realized that there is a need to move towards a bottom-up process and cross disciplinary approach rather than working top-down. Moreover, user driven innovation is becoming more and more important and the users' needs and demand is critical for innovation. These two movements together end up in open innovation.

When starting to think about how to best support open innovation, some questions came up: How to find and target these new groups of innovators, who are traditionally not in the agency's networks and who certainly not apply for its call for proposals. Maybe they do not even know about Vinnova. The second question was, how to renew the traditional policy

instruments – for example in IPR issues etc. that are different in open innovation than in the organization's traditional way of working. And finally, how to support new forms of innovation and motives for innovation?

In order to address these questions, Vinnova started a pilot test for how to support open innovation. The pilot addresses four different aspects: The first one is competition. For public actors it is not necessarily so that they want to support competition as such, but they want to use it as a tool for finding new companies and entrepreneurs who in the future might become a company.

The second one is crowd-funding. Here, the public can participate in funding of different projects. It is a sort of a self-selection and voting for innovative projects.

The third one is a lead user method, which is a way to find user needs for innovation. To do this, Vinnova decided to support a coach who will help different groups of innovators to renew their approach to innovation. This can be in very different environments, such as elderly care or in professional skiing and many more.

The last one is open data. The problem with open data is the lack of open data sets. Vinnova wants to use its resources to promote the openness of data. It is very important that data sets are free or available at marginal costs.

Two examples of how Vinnova supported open innovation: The fist one is the "24 Business camp", which was a competition about creating and implementing a functional Internet based venture in just 24 hours. Last week this competition was held at a Japanese Spa. The winners of this context will get contacts and networks and Vinnova is also supporting them in a network called the Swedish open innovation network which is like an accelerator for entrepreneurs.

The second example is a crowd funding way of financing. It is called "CrowdCulture.se" and is for projects in the cultural area. People can go in and vote and support the projects with loans, e.g. 5 EUR. The city of Stockholm and Vinnova then add on to the funding. CrowdCulture has attracted great interest and there a number of very existing and very different cultural projects resulting from this.

To conclude, open innovation is a great opportunity for public sectors. Vinnova sees a lot of promise in this pilot testing. This new form of supporting innovation is a very positive experience for a public actor.

ERIC LEGALE, Managing Director Issy-Média, City of Issy-les-Moulineaux, France, gave a very interesting and innovative presentation of

A Study on Open Data

The Global Cities Dialogue on Information Society is an international association with a clear objective: to stimulate initiatives which facilitate the development of the digital society in cities.

The goal is to share experiences and dialogue with other organizations, such as the Global Business Dialogue, Eurocities or this Global Forum. Created twelve years ago in Helsinki, the Global Cities Dialogue was the first international initiative based on the mayors' commitment to work together for an equal access to the information society. GCD is currently working on three big topics: Green IT, digital solidarity and e-Government.

In France, the city of Issy-les-Moulineaux has been committed for a long time in building a local Information Society which is innovative, open to all, offering a large number of electronic services. From online registration on the electoral rolls to Internet voting, passing by the mobile payment of the parking, the lending of e-books, the access to applications for smartphone, or the many administrative procedures available online, Issy's population benefits of a large offer of electronic services.

This explains why almost ninety percent of Issy's population is connected to the Internet and why many high-tech companies such as Microsoft, Cisco, Huawei or Bull, have joined the city. A city which counts more jobs than inhabitants, a unique phenomenon in France.

As European Living Lab, Issy-les-Moulineaux is transforming into a true smart city, with the project "Issy Grid", the first "smart Grid" district in France, the city's participation in the European project EPIC to create a "European platform for intelligent cities", and its contribution to the European project CITADEL, which will allow the development of new public mobile services thanks to the open data.

A study on open data has been carried out among the members of the Global Cities Dialogue: To give a wider visibility to the public data means to enable the population to be better informed but also to stimulate innovation from innovative companies. But Open Data is a new subject for the local authorities.

Eighty members city of the Global Cities Dialogue have been surveyed, from every continent and of different sizes. Less than ten significant examples were identified. This means that there are still a lot of questions around this issue.

The Digital Revolution has made the Internet an incredible source of information. Moreover, the rapid expansion of smartphones will increase the need for quick answers to theses questions. And, in consequence, it will increase the demand to publish a maximum of information and data, including those held by the public sector.

The Wikileaks polemic is a perfect example of the antagonism existing between the partisans of total transparency and those who consider that our society needs to keep some information secret. In fact, the debate is not new, as the access to administrative documents was regulated well before the development of the Internet.

First lesson learnt from the GCD study: Open data is a subject which interests mostly the specialists and there is a certain utopian enthusiasm around it. In the cities which have embraced the Open Data, the opening of the public data is a result either of a strong political drive or the request of NGOs.

But political will is not enough. Cities have to launch calls for applications in order to stimulate the development of applications. One of the best known examples is the one of Helsinki, in Finland. Thanks to an annual competition, several new services have seen the day, like for example “tax tree”, which develops a new way of presenting the budget.

The city of Issy-les-Moulineaux is also working on the opening of data. The tourist and cultural data will be concerned on a first time. Issy is currently studying the possibility of using the national platform which will be launched next December and will start discussions with the innovative companies in Issy to identify the data to be published first.

It is also interesting to understand why most of the cities still do not adhere to the Open Data movement. According to the results of the GCD study, Open Data is a process with an important impact on the organization of the local services. Open data raises legal issues (privacy, intellectual property), technical issues (format, platform), and organizational issues (decision- making, implementation).

Other obstacles are the real definition of Open Data, its business model and the coexistence of several licences. For example, Helsinki, Bordeaux and Barcelona have developed their own licences, each of them answering to different recommendations. At the European level, new recommendations for a European licence for public sector data will be published in next January.

The number of Open Data platforms can also become an obstacle. In the United States, the coexistence of more than two thousand public platforms is criticized. The data users are often lost. This is very important because it could be an obstacle to transparency, one of the major goals of the Open Data movement. In an attempt to solve the problem common portals are being developed, like the Spanish Basque Country's one, of the city of Bilbao, which has the ambition to gather all the public sector data of the region. Same ambition in Helsinki where a common portal offers access to data about the Finnish capital and other towns.

In conclusion, the study, which is available for download on the Global Cities Dialogue website, shows that the Open Data movement is indeed developing, but in a scattered manner.

We need to move step by step, but, if the Open Data movement is not generalized yet, it has already allowed the online publication of a great amount of information. Several applications have been created which help improve our everyday life.

The next step which needs to be taken is to convince the local elected representatives. But first it is necessary to clarify the legal framework, to adopt technical standards, to continue the efforts to coordinate and animate the ecosystem, to analyse the experiences undertaken and to encourage the adoption of common portals.

Finally, this subject covers domains that go way beyond technical, legal or economic aspects. It is a social debate, which relies on the idea that knowledge sharing will ensure human advancement.

SÉBASTIEN BACHOLLET, Member of the Board, ICANN, France, delviered an excellent talk on the

Internet Landscape & ICANN's Role

ICANN is a rather complex organization based on a multi-stakeholder model. ICANN is in charge of three main issues: the domain name, the IP addresses and some protocols and parameters.

With regards to the domain name landscape, there are historically few domain names for technical reasons and one for the international organization. There are three that are very well-known and used at the beginning, which are .com, .net and .org.

There are also some domain names which still seem to be global but which are in reality US centric. These are for military, government, and education.

The other type of domain names is the one at the geographic level, such as .fr for France, .it for Italy, .de for Germany etc.

Since that, some innovation came, because ICANN was created to launch new gTLDs. This was the case in 2000 with 7 new gTLDs, with different business models, different ideas and different purposes -- some for closed groups, some completely open. The idea was to see what could be the best business model for the future.

And to be sure that the try was set up completely, ICANN decided to go for a second round, but before this, an organization had the rather strange idea to launch a country code domain name for multiple countries. It was the birth of ".eu" , which is a country code with a lot of different countries. In the following, ".asia" was launched, which is the same thing as .eu but with very different rules.

What is interesting here, is that there was some innovation on that. Other examples for domain names with innovation are, for instance, ".cat", which is the domain name for Catalonian culture – not for Catalan but for the culture. If someone wants to join, s/he has to have a website with Catalan inside. Another innovation was ".tell". If today you use a domain in .tell, you don't go to a website, but to a place were you have your data with your phone number etc.

At the beginning of next year ICANN will opening a new round of new gTLD. Someone who wants to apply for such a new gTLD, s/he has to consider innovation. If you do like the others, it will be difficult to succeed.

JEAN-MARC MERRIAUX, **ICT Division Director, Universcience, Cité des Sciences et de l'Industrie,** France, brilliantly elucidated the global concept of Living Labs in the specific context of a science museum:

Living Labs Approach as a Means Towards the Development of Innovative Services and Products?

The Living Lab is great a tool for managing innovation. The Living Lab should be one of the players, alongside researchers and companies, in the production chain of innovations -- whether they be technological or social. The idea is to remove the research from the laboratories in order to bring out it into the everyday life, often having a strategic view of the potential usages of these technologies.

The definition of a Living Lab is based on the following key concepts: controlled by the user, innovation ecosystem, partnership between companies, citizens and research.

Citizenship in a digital environment and open culture are important topics in a Living Lab. The Living Lab consists of promoting open culture, sharing networks and involving users from the initial conception phase.

It aims at opening up the innovation process by integrating the ultimate beneficiary as a true player and partner in the process. The term "crowdsourcing" applies here. The Living Lab frees the imagination, develops creativity and accelerates the market launch, while still keeping innovation costs as low as possible.

Living Labs bring a strongly social dimension to research and to the business world. The idea is to demonstrate that innovation comes from the field and that it is not possible to innovate without users.

The Living Lab is a place for experimentation and creation. The objective is to create value, by helping good ideas to emerge at the right time; coming up with new innovations with their future users, and creating mechanisms for co-creation. But also accelerating the creation process: everything that is developed is corrected through its use and the disclosure of prototypes to the competition is accelerated, which accentuates the convergence of competing projects. Moreover, gathering usage data which will be used as part of other innovative projects. This resource base will help to accelerate research and reduce risks, as well as identifying, highlighting and interlinking the particular features and strengths of the various players. This is also a means of driving image and competitiveness.

Users are the main actor of a Living Lab. Innovation no longer takes place using the conventional approach (research in laboratories, R&D, then industrial development), but increasingly through usage.

The Living Lab enables usage to be placed at the heart of the innovation process. Intensified analysis of usage in the development process allows the expectations of the users to be incorporated from the initial concept and in all production stages. Digital technology simplifies these exchanges.

There are three types of communities in the Living Labs: users, researchers and companies or local associations. The difficulty for the research world is to give their work added value for companies and the users. The Living Lab has spaces for discussions and sharing throughout all the stages of research and the production process.

Universcience, is bringing together two Science Museums – the Cité des Sciences et de l'Industrie and the Palais de la Découverte. Universcience is the point of reference for the communication of scientific and technical culture in France. The Universcience Living Lab will promote the development of projects based on digital culture, new applications in museology, the interactions between science, technology and arts, and educations and mediations in direct contact with the scientific and educational community.

It enables a direct relationship with the public and the possibility of trying out innovations with the public. The public is used to discovering innovative spaces.

The Universcience Living Lab will offer experimentation projects for multimedia, access to knowledge, education. It will promote interdisciplinary innovation on digital topics in order to develop new digital uses, share better practices, facilitate the distribution of results and the communication of research.

Video games, design, digital heritage, radio, television and new media, e-education, e-learning, teaching, knowledge engineering, collaborative and information technologies in ICT, open innovation for the development of tools and services are the main topics in the Universcience Living Lab.

The Living Lab will promote experimentation based on tools and installations using cutting-edge information technologies. It will invite a large number of the general public to take part in research and development, discover the innovation process, try out new products, promote co-creation and new forms of collaborative creation. For example, a digital campus will offer zones for 3D simulation experiences, the design of serious games, use of digital educational content. Without users, there is no innovation!

ELISA LIBERATORI PRATI, Chief Archivist, The World Bank Group, delivered a captivating perspective of an institution whose innovation was enabled by technology:

World Bank Open Agenda: Open Data & Access to Information in the Development Community

The presentation shared a user perspective on how technology has enabled the Open Agenda of the largest and oldest multi-regional development institution, the World Bank.

Conceived in 1944 to reconstruct Europe after the World War II and headquartered in Washington, DC, the World Bank has evolved into one of the world's largest sources of development assistance, with a mission of fighting poverty. The Bank counts 187 member countries, operates in all continents, and lent 58.7 Billion USD in fiscal year 2010. The Bank has over 60 years of archived information and data that document its activities over time, and it wants to contribute to innovation to the development process by sharing this large amount of information. The World Bank wishes to enable "Open Development " by opening up its information to the world to empower interested parties in a participatory development process.

To support this objective the World Bank launched three major information projects: the Open Data initiative, the implementation of the 2010 Access to Information Policy, and the Open Knowledge repository project to "democratise development," in the words of Bank's President Robert Zoellick, by making the Bank's information easily accessible.

The World Bank is facing a number of challenges in making information accessible where technology could help. For example, the Bank Archives store an enormous amount of information, 463 million pages of paper records dating back to 1946. Stacked, the boxes would reach 7.5 times as high as Mount Everest. Currently, researchers get access to the historical information in a reading room in the Bank's main complex in Washington, DC. However, the World Bank has been making progress in providing easier access to the most requested information from the Archives. Since 2010, the World Bank has been implementing a new Access to Information Policy. All major operational reports from 1946 have been digitised and are available on-line in the Documents&Reports collection—120,000 reports searched by 100,000 unique users per month. These reports are a subset of the archival holdings and further digitisation will continue on demand for the most requested collections. The Bank Information Center (BIC), a "watch-dog" from civil society, has rated the Bank's Access to Information Policy as "the gold standard for financial institutions".

On the Open Data side, the Bank has made publicly available online years of development datasets. The Data Catalog provides free downloads access to over 7,000 indicators from World Bank data sets—from rural development to aid effectiveness; from climate change to education, gender , social development, etc. This is a change in business model, as the Bank used to sell this data. Now the development community can benefit from the free access to this data and information. "Today the Bank remains the largest single source of development knowledge. But knowledge must be opened to all… This is democratizing development economics… This will forever change how we conduct development research" (*From Hubris to Humility*, Robert Zoellick, President of the World Bank. Speech given at Georgetown University, Sept 29, 2010).

The World Bank has over six million unique users per month who access the Open Data website and download the data. They are analysing the data, doing mash-ups, and even participating in contests to create innovative products, such as the "Apps for Development" contest held in Spring 2011 to attract users and generate impact by using this free information.

The third open information project, is the Open Knowledge project that will make Bank research, analytics, and a subset of operational information accessible by Open Access search engines. The project, to be launched in Spring/Summer of 2012 will be coordinated by the Bank's Publisher. It will give access to academics, students, researchers, and policy makers to formal and informal publications of the World Bank through an Open Repository. The Open Repository will also allow the Bank join a growing number of Institutional Repositories.

The lessons learned during the implementation of these projects are that it is important to focus on organizing the information. Technology on its own is not enough, one has to invest in information management; invest in the capture and organisation of the information produced by the institution, in data catalogues, in archives finding aids, in archival description, in enriching metadata so that users can more easily access the wealth of information the Bank produces. For historical information preserved in the Archives, for instance, it is fundamental to enable browsing in addition to search, so that users/ researchers understand the context to make information more meaningful. It is crucial to create incentives for both Bank staff who have to capture and manage the information they produce, and for end-users to make effective use of the information made available by the Bank.

Open data, open information are public goods and they have to be used for the public good. We will work with others to collect, share and analyze data, measure results and increase knowledge.

STAVROULA MAGLAVERA, Research Engineer, Euroconsultants, S.A., Greece, provided an excellent and concise presentation of

INCONET-GCC: Challenges for Innovation in the GCC Region

Innovation through international cooperation is an ingredient that is important for the development of future open innovation.

The INCONET-GCC project, a project that lasts two years, is bringing together policy makers and stakeholders of the Gulf Cooperation Council and the EU in order to support a dialogue to identify the scientific and technology priorities for mutual benefit and interest and define cooperation policy orientations. In order to proceed in this international cooperation there was a need to implement specific activities to promote and contribute to the participation of GCC member states in the Framework Programme of the EC.

INCONET-GCC develops and supports the bi-regional dialogue by bringing together policymakers and stakeholders of GCC and EU. At the same time, it creates a dialogue and action platform to identify common interests in research areas, set up scientific and technology priorities, support capacity building activities, and enhance the interaction between different cooperation instruments of the EC. A final objective is to create an observatory of EU-GCC cooperation in science and technology.

The project started with a survey of the current state-of-the-art in both regions. The state-of-the-art has been presented within the framework of an event organized last year by the Research Council of Oman. The project's activities focus on the following 5 themes: capacity building, technology diffusion and innovation, social and non-technical innovation, governance and ICT. Interesting results came out of that that have been used for the setting up of the common research priorities.

Research areas, identified on the base of the analysis of the region's needs and the development's strategies, are grouped following the main schemes of the FP7 programme. Thus, the main research priorities are environment, water and climate (including also marine, agriculture, and food), health, energy security, and ICT. Additional subjects, more related to specific interests in some countries are aerospace, transport, and materials.

INCONET-GCC supports capacity building through the development of National Contact Points in each GCC country, training of the local people, the organisation of Information Days in the different countries, but also through the participation of the local GCC NCPs in the European Network of NCPs.

PIERRE LAFFITTE, Honorary Senator, President Sophia Antipolis Foundation, France, provided a great comment on

New Technologies and Regional Development: Which Tools ?

Global climatic change, energy, water supply and migration of rural populations into coastal megalopolis are important issues specially in the Mediterranean rim. Space and regional development make problems. Hinterland desertification and megalopole ghettos are catastrophic (costly and antisocial). Up to now, sun and sand destinations of the tourism industry participate to this ecological catastrophe.

That is why creating new tourist destinations is a necessity. This means developing new infrastructure and specifically fiber optics, broadband Internet facilities. Nowadays, all the tourists use Internet which provokes a dramatic change of the business models for the whole chain of tourist activities. This is a new opportunity for host regions.

Tourism is the first economic activity for southern countries after the petroleum industry and corresponds to 10% of the planet's economic activity. There were 1,6 billions international tourists in 2020 and near 300 millions of tourists are concerned in 2010. Most people are not aware that tourism grows to the status of a modern industry in close connexion with Hi-Tech.

In 2010, the French national research agency (ANR) called for papers for a feasibility study in the field of research strategy in the future of a new type of sustainable tourism. A consortium has been in charge to reply: Under the coordination of RIE an organization connected to Sophia Antipolis Foundation, the French Institute of Tourism (IFT), META, MONDECA and Amadeus. The result is the project "FUTOURAUMED", with three groups of recommendations: Observe; stimulate and organize; train, experiment and act.

The group 'observe' includes: Collect and structure good practises; observe the evolution of tourist demand, explore legislation and regulation in different countries and their adaptability and acceptability; consider the innovations and economic opportunities for the host countries offered by existing technologies.

The group 'stimulate and organize' includes: Develop research and innovation in the field of valorisation of cultural and ecological patrimony; organize research on specific ecosystems, environmental and human and sociologic characteristics for new regions of destination; introduce geopolitical research concerning risk and security of travellers in Mediterranean countries.

The group 'train, experiment and act' includes: Create a network of training centres in the Mediterranean Rim; ensure the cooperation between knowledge competences between the members of the network; experiment new practices and technical knowledge, and new uses of TIC, including Augmented Reality in the field of archaeological patrimony.

A general conclusion is to create a tourism cluster specially oriented in the field of research, observation, experimentation in different countries of Mediterranean countries. This cluster should be in connection with any European and Mediterranean clusters in the same field. This would be an important tool for regional development in this important part of the world, and useful in the knowledge of millions of people from the North and the South which are not sufficiently aware of their common history and culture.

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Session 8 – Social Networking: Identity in the eWorld

The **chair** and **moderator** of the session, **MAURIZIO TALAMO, Full Professor, University of Rome Tor Vergata, and President of Nestor Lab**, Italy, [http://www.nestor.uniroma2.it/index.php] welcomed the participants and set the scene for the following presentations. What is the meaning of identity in social networking. The concept of identity is complex. A person who wants to develop his or her life in a social network can create multiple identities and maintain them. The session will discuss the concept of identity under different points of view. Security and privacy are other important aspects of such discussion. A concept of privacy in a social network means that a person wants to maintain his or her story, he or she wants to be granted that his/her identity does not change with the time. Maybe there is a need for a easy to use system to "maintain the story", and after that the need to have the trustworthy infrastructure once the social networking becomes more complex, such as for health applications. A person is no longer just identified by a name, but by friends, habits, etc. Today, we have to think about digital identity in political terms, in economical terms, in social and legal terms and in technological terms.

BARTOLOME ARROYO-FERNANDEZ, Head of Unit, Networked Media Systems (acting), DG INFSO, European Commission, presented with great competence and commitment

Social Media: Policy & Research Issues

With regard to the penetration of social media in Europe 2011, 98% of Europeans are aware of social media. 73% of European Internet users use social network sites: Facebook 62%, Twitter 16%, Vkontakt 12%, LinkedIn 11%.

Within Europe, it is mainly Eastern and Southern Europe who obtain good scores with a higher adoption than the European average. With 66% adoption, Western Europe's penetration is much lower.

With regard to the time spent in portals versus the time spent in social networks (in the US), the progression of social media is evident -- to the point that this year the time spent on social media sites overtook the monthly time spent in portals. This is very important, for instance in the context of advertisement, which is based on minutes of usage and exposition to the user. One has not to forget that most of the services delivered through the Internet, in particular social media sites, are not really free, because people pay with the time they spend on these sites (by providing their privacy, personal data and profiling to these sites).

Opportunities are provided by the "social graph", which is a very powerful tool because it not only gives the personal profile of a person but also its relations and thus provides a lot of information to advertisers. The complication with the "social graph" is that most of the people

are part of more than one social network and that provides a multiplicity of facets to each person depending on whether the network is used work or for leisure etc.

Another important element is the globality and locality of social media. Both axes are very important and the fact that about 60% of the users are accessing social media via a mobile device provides ubiquity to these services, they become even more smarter, because they are incorporating web-services, and they become seamless in a sense that people can navigate easily from one service to another.

In the future, social media will probably become omnipresent in the access to Internet. All services will be delivered through a social media site and the user will not even notice that he/she is on a social media site.

Social media foster the shift from content search to discovery through the social graph which provides a tool to filter useful information.

Enterprise will increasingly use social media. The fact that social media provides immediate feedback from users is of highest interest for enterprises. The personalisation allows enterprises to treat with people rather than generic customers. However social media really provides an amplification of anything that is happening in the Net and there have already been some serious social media crisis, which can impact the reputation of an enterprise. Therefore, enterprises have to be very careful when using social media.

In social media, just as in other areas of the Internet, only very few winners will dominate. People tend to cluster in the sites they have relations with and will abandon those sites that are less successful.

One area funded by DG INFSO with about 100 million per year is Networked Media, this also covers social media. There are two main areas of research: Enhancing search by using the social graph and other means to optimize search and content discovery, and social media applications through video and broadcasting.

With regard to long term trends, social media will become a common feature of all future web-based applications and services -- an example is social TV connecting TV and social networks. Cloud computing combined with pervasive broadband access will underpin future web-based applications and services. Internet will continue to be the prime innovation engine. Another important element is the Digital Single Market and a Digital Economy Strategy is needed to strengthen the Digital Single Market.

There are, however, some critical points in social media: On average, children in Europe now start going online when they are seven. 38% of online 9 to 12 year olds have a social networking profile, in spite of age restrictions. More than 30% of children who go online do so from a mobile device.

Due to these striking facts, the Commission decided on measures to be applied within the next 18 months: Children should be able to easily report abusive content, cyber-bullying or grooming using a "single-click" system; children's profiles on services like social networking sites should be set to privacy by default—or measures with equivalent effect; Internet-connected devices should have parental controls installed also by default.

As regards issues and actions required, there are a lot of data breaches affecting thousands if not millions. Social networking sites are rolling out new features with very open default

settings, sometimes customers do not even realize what information they are giving away. There is undesired exposure and even identity theft. More transparency is required so that citizens know exactly what the deal is. But also more fairness so that citizens are not forced into sharing their data. There must be a user control so that citizens can decide – in a simple and effective manner – what they allow others to know.

ANDREY KOROTKOV, Professor, Head Dept of International Journalism, MGIMO University; Former Deputy Minister of Communications and Informatization of the Russian Federation, Russia, delivered a captivating talk on:

Social Networking 2020

The first decade of the 21st century was marked by the explosive growth of social networking services -- social networks of different types and interests.

We are speaking about a new very famous term: the platform. Twitter is a platform, facebook is a platform, one year ago, American online was predicted to become a huge platform. Probably, we will see the "mortal combat" of these platforms very soon.

The question is, whether this is really something new or something we already heard about long time ago? There is another battle of PR in selling new terms. Five years ago, we spoke about "on demand" services – today, we speak about cloud computing. We are speaking about standards and technical requirements needed to use specific technologies, but the user is not very interested in these platforms from a technical point of view. He is just using a terminal, which could be a mobile phone or PC, and does not want to now what is behind this in terms of technology.

We are speaking about intermingling of the different technologies. Unfortunately, the network – and we do not just speaking about the Internet, because networking is a much wider a aspect – was projected and the architecture was made by scientists not by militaries wondering about the security. A lot of critical infrastructure elements are now combined or intermingled with the local open networks where the citizens are. And more than 70% of the critical infrastructure is owned not by the governments but by some private companies.

Henry Ford was probably the pioneer of platforming: "Any customer can have a car painted any colour that he wants so long as it is black." And, "nuts could be produced either from copper or from chocolate, but they should be twisted clockwise". This is about platforms, standards and technical requirements.

The software produced on the budget money must be open source and be based on open standards. If any other player on the market would like to due with the national software platform, he must either open the code or generate interfaces for interoperability. There are already companies using these new platforms – there is more and more Twitter-based or facebook-based promotion of companies.

When looking at the social graph of users, there are friends, friendsters, fraudsters, fakesters, … We should try to help the users to react to this situation. Social networks are a most valuable source of information and a brilliant case within the context of competitive business intelligence.

Based on the information shared by users new companies use mesh-model to develop their businesses. This is strongly linked to trust. The problems of cyber-security brings us to the structure of trust of the whole technology. This is a great challenge of the ICT sector. If we will not find the right solutions for cyber-security issues, the whole technology will be compromised and will not have the brilliant future many people predict.

At the same time we are on the threshold of three new revolutions: At the end of this decade the number of active Internet users may reach 20 billion and among these new users there will be things, not just people. Widespread usage of cloud computing and SaaS model (software as a service) will result into drastic changes in copyright law because of cyber-crime and de-structure of trust. A revolutionary development in nano-bioelectronics is coming. It will be possible to produce computers made of DNA. They will not only reproduce themselves but they will also be biologically comparable with humans.

LINDA MCCORMACK, Head of Professional Services Communications Practice, Verizon Business EMEA, [www.verizon.com], delivered a remarkable talk on

Explosive Growth in Social Networking

This explosion of social networking is not just contained to the mainstream sites, there are a plethora of other sites which reinforces humans are driven to be social creatures just as spiders are programmed to spin webs. And as we have found ways to fulfil these social needs online, demand will only grow and it will evolve into richer ways of developing communities online.

As we can see from the growth of Facebook over the years, people have actually opened up and expanded their communities to not just being local but actually on a global basis. This growth shows that, when available, individuals will embrace, adopt and utilize technology to their own personal benefit to open up new channels of communication that can and do enrich their lives.

In the last few years we have seen some dramatic changes in business dynamics. The rise of emerging markets, the growth of eCommerce, the hyper-competition; the growth and use of social media, SaaS and the buzz word of the moment, the could. The future has still more to bring.

The new generations, whether from an employee, consumer or citizen perspective, have the expectations as stakeholders within the enterprise and government to step out and drive and deliver the art to the possible to the extend that such an innovation complementation will be among top selection criteria for CEOs as we see going into the next five to ten years. The technology exists today, but is all about bringing it together, the interoperability and the collaboration in such a manner that it eases the deployment, adoption and use.

New voice and video collaboration technology will only add fuel to the flames. Video and easier and more available use of interfaces combined with higher bandwidth will enrich and ease the experience online. The introduction of such things as virtual classrooms, where students can collaborate on a global basis, enrich the ability to tap into cultural differences, attending seminars with subject matter experts at the opposite of the world that they would never had the opportunity to do with in the past. This is actually leveraging the education and growth of individuals on a common level and there is a massive optic within different countries throughout the world.

We have also the situations where the ability to do face-to-face meetings at any time is a necessity. We see this more in a medical field and such things where doctors are having the ability to be more responsive, doing diagnosis and supporting patient care without having to be physically present with the patient. We also see tools like Linkdin and Facebook being used within recruitment processes. We have situations where we are actually identifying candidates that we would never reach within the enterprise hadn't it been the availability of them to freely populate their information onto the Internet.

We already identified that through technologies, such as context centre and voice automation, that humans are highly able to settle differences in syntax and other human interpretations that forces to adapt to the native needs rather than design technology wonders and expect humans to adapt. It will now instead be the other way around where humans will find the way to apply technology to meet their social needs and avoid things that will not satisfy them.

By underpinning this we can underestimate the importance of security and identity. We have a sense of ourselves in our everyday lives and we have a sense of how we relate to others and in working communities. We apply different facets of our identity that are appropriate to the context that we apply to. Again, our common view of identity as a concept as an extension of authentification is very far from the evolving reality. However, it is no longer about the bad guys and just locking things down -- it is about opening up the borders and applying the appropriate level of security required to satisfy, deliver and manage the data information that is being imparted.

Social network is enabling the smaller individual providers to also compete with the big players, to care about their customer needs through the power of technology that that brings. Size no longer matters, it is more about the ability to connect and communicate with your customer. It is leveraging the power of the individuals to connect and collaborate that makes business successful and competitive.

With 50% of the world's population being under 30 years old, the appetite, demand and expectation for social networking is being driven by the individual and not by the enterprise. Generations add a living, embracing and rapidly adapting explosion of accessibility and availability through smart devices and intelligent systems with the world seems to be getting smaller as their reach gets larger. Social networking is an enabler, driving efficiency and value for the individual, the enterprise and the government. It is a key that can open the door to the world of collaboration, independence, self-service, always on and information that tap in their unique needs -- available at any time, from any place.

ERIKA MANN, Head of EU Policy Brussels, Facebook; ICANN - Board of Directors, elucidated with great insight business models related to social networks.

Facebook's goal is to bring the online and the offline together. Therefore there is the real name policy – the real "you" that should be presented at a Faceook site. This is something that has to be observed very carefully, but it is the core of Facebook's principles not to have fake identities or policies where people are hiding behind different names. People trust each other on a Facebook site. It is a personal trusted relationship that is been build, that people bring from the offline world into the online world.

However, when continuing with this relationship into a more business or governmental context between government and citizen, between business and a citizens and individuals, certain parameters of this model change. And this changes especially in conflict situations, as we have seen in the Arab spring. The model of the real self becomes suddenly a problematic one. There are things that are never constant and that will evolve and we are part of the development -- we can not disconnect ourselves from the development happening in social media, either we like it or not.

It is a very different business model which comes from the social media. And there is one distinction which is key: It is the differentiation between data and between information. There is so much confusion about the data companies such as Facebook. Facebook does collect data because of certain reasons (security reasons, a specific service to be delivered etc), it does do not collect information.

Some recent figures (June 2011):
People who use Facebook know 97% of their Facebook friends from face to face interactions. Of these friends, nearly 90% have an ongoing relationship with the user, meaning they have engaged in real world social interaction more than once.

A person who uses Facebook regularly has on average nearly 10% more close social connections than someone who does not. This applies not only to Facebook based relationships but to real world connections as well. Facebook and social networks have no negative impact on real world contacts. People who use social networks are just as likely to know as many neighbours and co-workers as those who do not.

The average age of a social network user has grown from 33 to 38 over the past three years. More than half of the adult users are over 35 for the first time ever. Women drive Facebook: On any given day 18% of female users update their status compared to just 11% of male users.

31% of all people who use Facebook check their profiles multiple times a day. 52% of those are active on their Facebook profiles seven days a week.

Compared with someone who just browses the Internet, a Facebook user is more than twice as likely to engage in political meetings and is 57% more likely to persuade a friend or co-worker to vote for a candidate. The person is not just socially active, put active in a public sense. There is a connection between what a single person dies on Facebook and his or her understanding what citizenship means.

Facebook users are more likely than users of other social media services to turn their experience online into political activity – either through attending events, disusing politics with co-workers, etc.

Users on Facebook have trust. The way Facebook operates really respects their privacy settings and individual chosen privacy settings. Negative experiences can be reported immediately.

The citizen aspect is a very important one. In the online world which we experience with social media, the user actually becomes stronger connected, either through governments or stronger connected to political events. It is not a passive user. What kind of features are needed to ensure the privacy of a user? Facebook wants People to chose settings that match their comfort level. There is no single comfort level for all. Moreover, people should have control over each piece of content their share as well as the audience with whom they want to share the content with. It is a multi-layered approach, where each individual ideally chooses whatever he or she wants to share with whoever he or she wants to share it.

The EU data privacy setting is still applied in very different ways in each of the Member States. The data privacy framework must fit into what a company can manage and to what the consumers and customers want. Hopefully a good understanding can be found with the upcoming new EU legislation – a more united European understanding, and a good understanding between Europe and the US, Russia but also India or China. Hopefully also a greater international understanding – it is not just company and citizen driven, but also government driven. The existing Safe Harbour Agreement between the EU and the US should be extended on a global scale.

Finally, we should work much more on the missing aspects, which must be very much government driven: There is a need for more media education. Young people really have to understand the borders of privacy and this is something one can learn.

JON SHAMAH, Head of EMEA Sales, Nets eSecurity, United-Kingdom, delivered a captivating talk on

Scoping the Single European Digital Identity Community – SSEDIC

SSEDIC is a CIP Thematic Network funded by the EC. The objective of SSEDIC is to provide a platform for all the stakeholders of eID to work together and collaborate to prepare the agenda for a proposed Single European Digital Identity Community as envisaged by the Digital Agenda (DAE) in its Key Action 16.

Trusted Identity, including the use of quasi-pseudonyms, is crucial for the sustainability of social media environments and e-Inclusion. One of the big issues is age verification of minors to protect both users/ children and provider. In contrast to age protection, age verification works both ways: It dies protect children, but it also protects the organization from breaking legislative rules. For instance in the US, you are not allowed to market to under 13 year olds with targeted marketing. It is not necessarily needed to provide the date of birth, as one could use best practices of minimum disclosure, e.g., are you below/ above an age.

There are some very successful simple ways of providing age verification. One of the big Internet drivers is gambling: They have quite a robust method of trying to ensure the age of their users, which is by ensuring that they have a credit card or banc account. Again they are protecting themselves. We have issues where the governments hold the rules with regards to licensing. If you do not obey their rules, at the end you are cut off.

Distortion or perversion of statistics is another issue in this context: If you do not have the real names and without being able to uniquely identify individuals (there are lot of people with multiple identities), then, the problem is that any statistic's or business value that you get out of the social media is valueless.

Another point is that anonymity is an illusion. In the event of emergency, the social media organizations are obliged, in the case of criminal activities, to release identities to the authorities.

In the cross-border user-base, trust should not be dependent on geography. Users come from a global network so identities need to be recognised.

Education on the use of identity prevents digital natives ("Mowglis") from becoming digital citizens. Kids are currently learning the rules from "the street". Technically they can do it, but privacy settings are fine, but if they do not understand the impact of privacy settings, then they are useless. Another side of this is that language and attitudes from the social media becomes perverted and will attitudes will migrate into the physical world. Digital education is key to making sure that kids understand what is anonymous, what the persistence of data is, what the impacts of the settings are, what the ethics of identity swapping are, etc.

SSEDIC has the mission to contribute to a strategic vision for Europe in defining rules and guidelines for a future seamless digital Europe so that individuals and organizations can access online services with confidence, privacy, choice and innovation anywhere within the EU.

The project has a very strong management team, a large number of strong partners, both large and small companies and organizations, and many associated partners from all parts of the European Union.

JEREMY MILLARD, Senior Consultant, Danish Technological Institute, Denmark, delivered a very distinguished presentation of

Social Networking and Changing Governments' Identity –
A real Business Case or Leap of Faith

It is difficult to get real cases and data about what benefits a government gets on terms of how social networks impact government, the way it work but also its identity or its relationship with the citizens.

The first example of a business case is the "Love clean streets" project in Lewisham, London. It is a typical "fix-my-street" type project, where people report on graffiti, people leaving rubbish etc. However, this is one of the best ones because it is changing the relationship between government and citizens and they are changing the way the government works. A part from saving the government a lot of money, it changes the perception of citizens about how the government operates – and therefore improves things in other ways as well.

The purpose of the project was to improve environmental quality and the total cost between 2010 and 2012 amount to 176 362 GBP. Some benefits recorded mid 2011: 87% reduction in staff time per case; staff overtime from 300k GBP pa to zero; 70% reduction in handling

costs; 18k GBP pa decrease in inspection costs; 73% less graffiti; and 30% increase of resident satisfaction.

There are several measurable short-term savings and other business benefits due to channel shifts -- moving complaints from face to face, from post or email, from websites to the mobile phone), improved targeting, increased staff productivity – because now complaints are going directly to the teams on the streets, given them greater self-esteem, satisfaction and quality in their own work, and it changed the work processes. It changed the way citizens see government from opaque and non-responsive to open and reliable.

The second business case is THMBNLS, a UK social media site, which is the worlds first interactive drama series to help teenagers not to get pregnant. The purpose of the project is to contribute to halve the under-18 unwanted pregnancy rate.

The total cost in 2009-2010 amounted to 284,00 GBP. Benefits by end 2010 were 267 744 visits to thmbnls.co.uk, over 100 000 visits to thmbnls.mobi, 10 513 referrals (Facebook, MySpace, YouTube & BBC), and over 60 000 personal interactions. It has been a great success, but its real impact on teenage pregnancy can not be assessed yet. In contrast to the above mentioned project, the success of the project can only be evaluated in the longer term.

It is difficult to measure long-term savings and other business benefits: The cases tend to be preventative, pre-emptive, and focus on early intervention. So measurable benefits in terms of money savings can not really be evaluates. In addition to that, savings and benefits are likely to accrue elsewhere in public sector. Such projects might influence the way citizens see government from big brother to big friend ...

ALFREDO RONCHI, General Secretary of EC Medici Framework, Politecnico di Milano, Italy, was unfortunately not able to attend the session, but he provided a great paper on

Netizen, eCitizens, Cyber ID ...
Being Human in the Digital Age

ICT is stimulating changes in the way most people earn their incomes; altering the balance between our roles as consumer and producers; changing the way we educate succeeding generation and train ourselves; changing the fruition of world's cultural heritage; transforming the delivery of health care; altering the way we govern ourselves; changing the way we form communities; altering the way we obtain and communicate information; contributing to bridge some cultural or physical gaps; and modifying pattern of activity among the elderly.

This is not a complete list of changes, but highlights some of the most prominent and important effects of ICT on our society. We are witnessing relevant changes due both to technological enhancements and modification of user requirements/expectations. In recent times the digital domain, once strictly populated by professional users and computer Scientists, open up to former digitally divided. Technology is evolving toward a mature "calm" phase, "users" are overlapping more and more "citizens" and they consider technology and eServices as an everyday commodity, to buy a ticket, to meet a medical doctor, to access weather forecast. It is a common understanding that recent generations represent a discontinuity if compared with the past ones. How do we identify a digital native? They are the eCitizens.

This paper presents views of a society changing under the influence of advanced information technology. Computers have been around for about half a century and their social effects have been described under many headings.

Please note that the full paper is available for download at the website of the Global Forum.

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Citizen Centred eHealth & mHealth

The **chair** and **moderator** of the session, **ELENA BONFIGLIOLI, Senior Director Health, Public Sector, Microsoft EMEA**, [www.microsoft.eu], welcomed the panellists and made an excellent introduction to the session by creating a link to the previous session:

The session before presented a great initiative to engage with governments in a very participatory and empowered way. This concerned the field of eGovernment. However, such initiatives also increasingly appear in the field of healthcare. One example is the project iWantGreatCare. Few years ago, Dr Neil Bacon set up a cloud computing based service whereby patients could rate the GPs and get engaged and offer much more choice for others who wanted to see where they could go and "shop" for better health. This is a small example but it shows new avenues that we are seeing appearing in the field of health and well-being – where mobile health, cloud computing, natural user-interfaces are break-through transformative technologies that are shaping the way in which not only health delivery is being done today, but also the way in that healthcare delivery will be possible and sustainable funded in the future. The equation of cost, access and quality, when it comes to health, is broken and something has to be done from a policy perspective, from an industrial perspective, from an innovation perspective, from a regulatory perspective. And these are the different perceptions and also usability type of aspects that make sure that citizens and patients are able to buy in to the offering.

MARIA IGLESIA-GOMEZ, Head of Unit Strategy and Analysis, DG SANCO, European Commission, presented with great know-how a most important initiative:

European Innovation Partnership on Active and Healthy Ageing

The EC considers aging as one of the main challenges of the coming years. Different activities are scheduled for this aging challenge. One of these actions is to launch a partnership with the relevant actors on how innovation can help to keep the aging population more active and more healthy. Predictions are that in 2050 more than 30% of the population will be over 65. This can be a problem, but also a big opportunity -- nor only for business but also for citizens who can live longer and can improve their healthy life years.

The EC proposes a new way of working from the policy authorities. Certain issues can not be solved by regulation. The intention is to launch a holistic approach with all the actors and centred around patients and elderly citizens. In this context, a partnership has been established, focussing on three main objectives: The first one, "triple win", is to be more active, more healthy and more independent until old age. The second objective is to maintain and to make social and healthcare systems more efficient and more sustainable. The third objective is to create opportunities for companies and for the competitiveness on a global

scale. These three objectives have a common headline target, which is to increase the healthy life years by two years by 2020.

The partnership has been launched in May this year with the constitution of a steering group of very high level personalities representing all the sectors concerned by active and healthy aging. They are 30 personalities: ministers of health and ministers of research, CEOs representing not only the digital industry but also the pharmaceutical industry and even food companies, medical professionals, nurses, carers, patients' organisations and the Commission. This Steering Group has met three times with the objective to prepare a strategy. The strategy is now defined and consists basically in the identification of three strategic pillars where innovation can support active and healthy aging. These pillars are the prevention, including screening and early diagnosis, for instance to prevent falls of elder persons or to prevent certain chronic diseases. The second pillar is care and cure, all around health systems and questions like how to integrate them more and make them more sustainable and efficient. The third pillar is about mechanisms and devices and services helping to be more active and independent in the older life.

The strategy reflects the vision that aging should be an opportunity and no longer a problem and that it should be holistic in the approach towards it. The strategy should be based on the three pillars and should have a kind of roof, which is made of the horizontal issues that affect the three areas of activities: funding, regulatory conditions, evidence and data around cost and effectiveness.

Five big actions will be launched very soon. These actions are going to be made at a local and regional level supported by industries, local authorities, hospitals, patients etc. They are about improving treatments, preventions, and functional decline of older people, developing more independent and active living solutions and also to develop at a regional level more integrated care for chronic conditions.

These actions need to make a difference in the real life. The EC does not want to launch European guidelines but really to go local and to develop at a city and regional level activities that report to the three important objectives mentioned above. These actions should contain a critical mass to change things and to deliver the objectives. The actions will be launched in January or February next year. The intention is also to go to the Council and the Parliament with a communication to support this and to really push the Member States in their political will to support actions at a local and regional level.

The **Q&A** addressed the question about the main difficulty to overcome in order to make the partnership succeeding. Ms Iglesia-Gomez pointed to the resistance to change as main difficulty in the process. Not only within administrations but within all actors. It was difficult to put them all together because they do not speak the same language. Nurses do not speak with doctors, carers do not speak with patients, pharma industries do not speak to digital industries, ministers of health do not speak to ministers of research etc. The difficulty was to make all these traditional ways of doing changes coming and sitting together and find a common language and common vision.

WILLIAM LONG, Counsel, Sidley Austin LLP, United-Kingdom, provided a very clear and interesting overview on

Legal and Regulatory Issues with e-Health & m-Health

To really take the benefits of eHealth and mHealth, we need to ensure that we bring along the regulatory and legal aspects and at the current point in time, this is still a work in progress.

Different initiatives have been taken over the years trying to provide a more coordinated response to the legal and regulatory issues in relation to eHealth. The European Commission is engaged in an ongoing process of bringing together the different stakeholders and looking at the different issues that pertain to eHealth.

One of the specific issues and increasing concerns in relation to all areas of technological development, whether it is social media, cloud computing or eHealth, relates to the use of personal data. We need to find that balance between the individual's rights to privacy and how their personal data is being used, and at the same time a recognition that if we are to enjoy the benefits of the increased healthy live years and use eHealth, we need to be allowed to use that personal data through eHealth applications.

This is being recognized by the EC and at the current point in time the Commission is reviewing the data protection directive for the first time since 1995. Obviously being understood that the existing regime was put together a time when most people were not receiving emails and probably did not had mobile phones.

12 years later, things have moved on very much. The current regime that we have for data protection is essentially floored, partly because of the different application the different EU Member States apply to the data protection directive. There are particular inconsistencies around very sort of threshold questions, such as "is de-identified health data personal data or not?", or "if we have certain combined identifies, such as the patient ID number, their age, their weight etc. – would that amount to personal data or not?". And there is current ongoing debate and discussion between the data protection authorities on the one hand and the health regulators on the other as to where that line should be drawn.

Another particular issue in relation to the use of heath data as a threshold matter is the legal grounds in which we can use that information. At the moment the grounds in which health data can be used are very restrictive and essentially relate to having the explicit consent of the individual, except in certain circumstances where it is necessary for the vital interest of the individual or for certain aspects such as preventative medicine.

But what does explicit consent in the electronic eHealth environment really mean? In some Member States there is still very much the decency towards the use of forms and signatures etc. At the same time, there are also these issues concerning the ability to transfer data in a global environment, which is critical to eHealth. One of the main restrictions of the data protection directive is the ability to transfer data outside the EU. This is a particular concern in relation to cloud computing. And at the moment there are certain aspects that are coalescing in relation to cloud computing. The idea that a European cloud should be formed to deal with European data. A potential balkanisation between different jurisdictions having their own different cloud to protect their own individuals.

The other aspects of regulation and legal aspects in relation to eHealth and mHealth relate to some of the more general existing legislation. For instance, eHealth products and services are subject to a myriad of consumer protection laws including EU product liability directives and product safety directives. There is concern and inconsistency between different European countries in relation to certain aspects -- such as medical liability in relation to healthcare providers, which is normally a national law issue.

Another area where there is some concern is in relation to what is a medical act. In some EU countries, such as Austria or Poland, there is the general position that a medical act requires physical presence between the physician and the individual -- and that of course would be problematic in an eHealth environment. That can also lead to issues around reimbursement and exceptions in terms of accreditation of healthcare professionals.

To conclude, there is still very much a working progress, there is the general recognition that if we are to be successful in eHealth and mHealth policies we need to update our laws and regulations and provide a harmonizes approach. A number of initiatives are underway through the Commissions efforts in this regard. In 2012 we are expecting a Commission working paper looking at some of these requirements trying to take us forward.

During the **Q&A**, the question raised, how the triangle usability, risks and costs can be rebalanced in the future. Mr Long stressed the need to recognize that, in relation to data privacy, we live in a more complex world where the different actors and uses of personal data are much more complex than they were 15 years ago. We need to move away from a binary approach in terms of thinking about personal data to a more sophisticated approach which takes into account the concept of accountability – that is that people assess the degree to which data privacy aspects should apply based on an assessment of the particular sensitivity of the data. That is something that will probably come through with the new data protection directive.

Elinaz Mahdavy, European Affairs and Strategic Partnerships Manager, Orange Healthcare Division, Belgium, delivered an inspiring presentation on

mHealth Solutions: From Dreams to Reality

Orange Healthcare is the health line of business of Orange, the French Telecom Operator. Orange's health business line has been set up four years ago and the main objective of Orange Healthcare is the transport and hosting of medical information within the medical ecosystem and among all players.

However, mHealth remains a fuzzy concept, covering many different kinds of services and many kinds of different devices. Orange Healthcare has broken down mHealth in three different segments based on usage: The first one is the segment "services for health professionals", which is the exchange of information only between two healthcare professionals. The second segment is "health management" (going along with telemedicine or chronic disease management) and refers to the exchange of information between patient and healthcare professionals. The third segment is mostly about "prevention and wellness" and refers to the exchange of information between citizen to citizen, patient to citizen.

There is a whole ecosystem. Orange never goes alone and needs partners. The mHealth ecosystem consists of 4 layers and is a classic value chain for telcos. Orange is located in

the value chain between patients, device manufacturers, and the software industry. The company's core business in healthcare is to host and transport information in a secure way.

In health management, devices are key but telcos provides access and security. For instance, Orange has been working with devices manufacturers like Sorin (manufacturer of pacemakers) on chronic disease. Normally, the patient who received a pacemaker has to go for a check up every six months to see if everything is ok. Within the partnership between Sorin and Orange, all the medical data of the pacemaker were sent to the doctor on a daily basis. So, if something is abnormal, immediate measures can be taken.

Another example are the activities of Orange Healthcare in Africa. Mobile penetration in Africa is huge. Therefore access to healthcare, at least primary healthcare, can be provided via mobile phones. An example is the partnership with the NGO "Text-2-Change" to empower healthcare prevention and awareness in Camerron. Thousands of emails are sent out on a daily basis to create awareness and inform on specific subjects relayed to healthcare. Other examples are projects on tele-dermatology in Botswana and Egypt. Because dermatology does not require high resolution images, tele-diagnostic via mobile phones is possible. Another example is death prevention of newborns: SMS are sent on a daily basis to follow the development of the baby's weight.

mHealth in developed countries allows to improve the efficiency of health -- mHealth in developing countries enables access to health. In any case, mobile health is mainly about health management.

Health management/ mHeath requires a strong engagement of the healthcare professionals. Within the following **Q&A**, the question raised how to best engage them and what and if there is any resistance to change. Ms Mahdavy confirmed that there is sometimes resistance to change. She stressed, that the best way is to raise awareness by training, by giving concrete examples and also evidence of the pilots carried out in order to show that mHealth works and can increase efficiency. Of course there is a huge work to be done in the context of change management.

MARIO PO', Executive Director of Health Local Authority (ULSS n. 8) of Asolo, and **PAOLO BARRICHELLO, Responsible for the Informatics Unit, ULSS n. 8 of Asolo**, Italy, delivered with great enthusiasm a very interesting presentation on

Cloud Computing for Digital Healthcare

The local healthcare unit n. 8 of Asolo in Italy uses a cloud solution to offer increasingly innovative services to citizens. The conference "Cloud Computing for Digital Healthcare" that took place in October 2011 in Castelfranco Veneto was the first conference in Italy for this strategic model.

Asolo unit is a digital health administration. In terms of its results with regard to the European Digital Agenda, n. 8 of Asolo is located far above the EU average.

Two examples of Asolo's digital applications are mobile health and cloud based telemedicine:

Case one: With the convergence of digital services on mobile devices, the patients can read their own clinical report and can consult their own EPR on their mobile phone, thanks to a

clinical platform located in a cloud computing architecture. With the mobile, the access to information is easier, patients can be reached everywhere in the world and the attending physician can consult clinic data. 87% of the patients consult their clinical reports online. So, it is no longer necessary to go to the hospital to take the report.

Case two is a medical monitoring bracelet -- an advanced telemedicine device that incorporates the main functions of medical/vital records monitoring and storage in the electronic personal files of home-treated patients.

It is possible to monitor and to archive main vital functions of patients at home or any other place. The cloud based platform receives telematic data by the clinic and stores them in the EPR. The attending GP in collaboration with the cardiologist can monitor patients accessing to the online medical system.

Medical measurements recorded with the monitoring bracelet are blood pressure monitoring, heart rate, regular heartbeat, one Lead ECG, respiratory rate, body temperature, and sensor for blood saturation monitoring. The service objective is to decrease the number of accesses to emergency and hospitalisations.

During the conference in Castelfranco the 10 recommendations for cloud computing for healthcare (the Castelfranco Veneto Cloud Charter) has been presented, especially to administrations. The recommendations are the followings:

1. Redundant Broadband network, for the connection between hospitals, physicians, patients and service providers.
2. Road map to move hospital systems into the G-cloud under sustainable economic, management and security conditions.
3. Interoperability exchange solutions with intra-cloud, inter-cloud, and cloud-ground interface with cloud-based and non-cloud hospital systems.
4. Storage of clinical data in data centers located in a EU country guaranteeing compliance with Italian regulations.
5. Permanent operative continuity of the systems in the cloud, with frequent stress-testing solutions.
6. No external tampering with clinical data in the cloud.
7. Service provider's liability for clinical data theft, outages, downtime, interoperability failures.
8. Evolution of hospital ICT Unit towards service management skills.
9. Provider's knowledge in clinical process and hospital organization.
10. Hospital privacy and risk manager for the monitoring of clinical data management, protection and security.

The coming three steps to define rules, costs, etc. for clouds in healthcare are a second meeting in Jerusalem in March on new rules for cloud computing in eHealth, a meeting in the Silicon Valley next July for services enabled by services, and finally the eHealth session of the Global Forum 2012.

In conclusion, there is a need more broadband network, less rules and barriers, more ICT networks for hospitals and less investments in old technologies in hospitals.

GIUSEPPE NOVELLI, Head of the Human Genetics Research Unit, The Tor Vergata University of Rome, Italy, provided an expert comment on

Improving Quality of Life by a Transnational Medicine Perspective

There are three important questions in medicine today: Why some individuals get sick more easily? Why is treatment successful only for some individuals? Why are some individuals more prone to adverse effects?

The problem is, that every year, adverse reactions to drugs possibly kill 100 000 American patients. Over 2 million people have serious reactions to medication. A "one-size- fits-all" medication can be dangerous.

It is a frustrating realty of modern medicine — doctors know the drugs they prescribe don't work for all. The solution would be to target drugs to individuals based on their genetic makeup.

“Personalised medicine may be defined as “a medical model using molecular profiling technologies for tailoring the right therapeutic strategy for the right person at the right time, and determine the predisposition to disease at the population level and to deliver timely and stratified prevention”.

The model is to put together all the classical medical record data with genomic data and with data related to culture, education and the lifestyle. By combining these data, it is possible to get an overall risk profile of the patients.

All these information can be kept on a single chip: Medical information on a smart card that contains our unique molecular profile. Healthcare providers could consult the profile before treatments/ drugs are prescribed.

We also push genomic discoveries back into the EMRs to support clinical decision.

The problem is that’s six billion letters of information. No physician is going to look at six billion letters. We need to develop new solutions to provide physicians with a clinical decision support. For example, if a pop-up on an EMR could inform a physician that his patient has a genetic variant that affects the processing of a particular drug, the physician could then use an alternative drug, increase the dosage of that drug, or do nothing.

“Its far more important to know what person the disease has than what disease the person has”.

HERCULES DALIANIS, Professor in Computer and Systems Sciences, (DSV), Stockholm University, Sweden, added a most interesting comment on the reuse of patient records for research purposes:

Reusing Clinical Documentation for Better Health

The Stockholm University has been working with patient records from the Stockholm City Council containing in-patients from the Stockholm greater area. 1 million patient records of 3 years from 800 clinics have been are de-identified and stored in the University's server.

Of course they are de-identified, but they are still very sensitive: There are no names and no social security numbers on it, but in the free text of the records, the physicians write notes, like the name or telephone number of the patient's wife. So, it is rather easy to track who the persons are. About 1% of the text is sensitive and you can not just leave it out. The Stockholm University is also developing tools to remove these sensitive information.

However, it is very important to have these records for research. It contains so much information about healthcare and it is very valuable for future research. Stockholm University has developed a couple of tools that can be used very soon and that will decrease the work of the physicians when working with the patients records. First, he or she will easily get access to the records and will easily get an overview or summary of the records, but also in helping writing parts of it. These very small improvements, which correspond to about 1 minute faster work for every 15 minutes of consultation, will just in the Stockholm area save 20 million EUR yearly. There are approximately 4 000 physicians working for the city council.

Together with the medical company Astra Zeneca and the WHO in Uppsala, Stockholm University just started a 5-year project on adverse drug reaction. The Stockholm University will connect the results or the research from the pharmaceutical company in what drugs should be used for which diseases to the real facts in the clinical patient records in order to detect what is really the adverse drug reaction and which specific cases are problematic.

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Q&A

During the Q&A questions from the audience were gathered: There are a lot of mobile operators and they all have specific mHealth applications. How do they all work together? What about crowd sourcing for accountability in the health sector? mHealth strategies seem to be based on a top down approach. Are there strategies to getting people pushing the information? Can to get the information fast enough to where it needs to be used or distributed? How to balance privacy and confidentiality on the one side and providing patients with what they really want, which is better healthcare?

Mr Long, Sidley Austin LLP, explained that the most important thing to do is to get involved in the actual ongoing debates both in relation to the reform of the EU data protection regime and cloud computing. We are supposed to have a first proposal of the reviewed data protection directive from the EC in February. At the same time, there are a lot of discussions ongoing in relation to cloud computing. There are very different views coming out on this particular point: For example some German Data protection authorities consider cloud

computing as not compatible with the EU data protection laws. Some Danish local authorities are saying that health data can not be processed in the cloud because it is not possible to demonstrate the audit of security procedures. There is a general danger of a balkanisation occurring in Europe where we are siloing data within Europe without thinking about the need for global data flows to occur in a controlled way. We all should get involved as far as we can and have this debates about where is that line between the rights of the individual and the need for societies to allow for a use of data in a long-term for the actual benefit of all.

Ms Iglesia-Gomez, European Commission, added some comments with regards to the EC's initiative on aging population, which is a little bit to put into practice eHealth, mHealth, cloud computing etc. in the real life. The first thing to do is to identify the related bottlenecks and problems. Experiences can be generalized, but the first bottleneck is interoperability of the systems. There are a lot of experiences at a local, regional and national level. The problem comes when doing things at a cross-border level. You have electronic records in regions and in some countries, but the problem occurs when you want to exchange them among countries – not only with regards to data protection but also in terms of interoperability of devices. These bottlenecks are related to regulation. The EC wants to accelerate the review process of the directive on data protection. However, this is a general directive and as responsible for health, DG SANCO, requests health data to be treated in a different way. Of course this is requested from the perspective of patients but also of health professionals and health systems. However, the views of some Member States are still very rigid and there is not very much reason for optimism as regards a common solution on the issue of data protection. But it is a big issue, and the only thing one can imagine is particular solutions. In certain cases this has worked, even in the context of a rigid framework for data protection. As regards interoperability of cloud computing, interoperabilities is much easier to solve. They require a clear political will of the Member States to recognise that harmonization and standards are feasible.

Of course, behind this scenario is the financial crisis and financial cuts and the question who will pay for this. It is not possible to solve on problem without looking at the whole picture. We have to try to overcome all the different bottlenecks. It is holistic problem -- a problem of imaging of reengineering completely our health system. Personalized medicines is not possible in traditional health system. From the moment you have a sensor in you body, you need a completely different system to take care of you. This is why things need to be done at the same time in a holistic way – otherwise it will not work.

Ms Mahdavy, Orange Healthcare Division, underlined that there are many actors in the scene but the objective is to harmonise, to align objectives and to have one voice. This is why most of the actors are members of specific associations. Orange is also partner of the Mobile Alliance. As regards accuracy of information, Orange never goes alone but cooperates with the patients, the healthcare professionals etc. To go forward, joint partnerships with all actors involved are vital.

Mr Po', Asolo, stressed that providers do not know very well hospitals. They might know about diseases, but they do not know using hospital technology for a use by citizens. Before talking about mobile, it is important that providers know very well applications in hospitals and the problems related to the organisation in hospitals.

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Globally Green & Beyond

The **chair** and **moderator** of the session, **KARIM ANTONIO LESINA, Executive Director, EMEA Government Affairs, AT&T,** [www.att.com], welcomed the panellists and briefly introduced the general conduct of the session. He then led the participants through the session with great ease and inspiration and did an excellent job in animating the concluding debate.

JOHN G. JUNG, Co-Founder and Chairman, Intelligent Community Forum & President, Intelligent Community Forum Foundation, USA, presented with great know-how and expertise why

Cities Should be the Focal Point for Sustainability

The Intelligent Community Forum is headquartered in New York City. It is a Global Think Tank focussing on Communities around the World, especially from the point of view of special infrastructure like high speed broadband, but also from the perspective of skilled talent, innovation and creativity, digital inclusion, marketing, advocacy and public policy. There are around 100 cities working with the Intelligent Community Forum and they have been evaluated and recognized around the world as “smart and intelligent” communities.

Cities should be the focal point for sustainability. It has many concentrated resources including a huge pool of talent and enabling technologies. It should not be viewed as depleting resources, but rather investing to create entirely new ways of doing things that are better for the environment and for society as a whole, but it can also establish new business and economic development opportunities.

Sustainable development is defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." But it should also improve the quality of life in a city in all its forms, without leaving a burden on future generations

We should look at “Future proofing” principles that focus on sound energy and environmental efficiencies and practices, eco-system approaches, smart growth, healthy cities, digital cities, and intelligent communities.

Cities and their neighbouring regions are where the major producers, consumers and distributors of goods and services intersect. The world’s major cities are actually “vortices of unsustainability”, with concentrations of environmental threats and evidence of social and economic distress resulting in a struggle to maintain sustainability.

Cities should become models of sustainable communities that actually improve the quality of life by seeking a balance or harmony of ecological systems. They should use their limited and scarce resources to meet current requirements while ensuring that suitable resources are available for future generations, and set the stage for renewable resources to provide an overall improvement over the current condition.

What are some of these models? Today there are many cities that celebrate their eco-city policies and community aspirations as cities which are designing or reshaping their communities with consideration for environmental impacts. Their citizens and leaders advocate minimization of use of energy, water and food, and output of CO2, among other forms of pollution.

One example is Waterloo, Canada, a region of over half a million and on it way to three-quarter of a million in less than 20 years. It has built it reputation as a manufacturing and education center but has grown in its ICT and financial services and other sectors to be a diverse community. It is tech community, its engineering and maths related universities and its enabling technologies and over 150 think tanks including the new Stephen Hawking Perimeter Institute and a unique leadership group called Sustainable Waterloo have taken this community to new heights as a green intelligent community model.

There are numerous examples of more sustainable intelligent cities, such as green strategies, green roofs, solar and wind, connected cars, CO2 monitoring, triple platinum lead certification, intelligent community strategies, or intelligent metering.

Simply put, a successful sustainable city maintains an energy budget that deals with all its needs with minimal reliance on external sources of energy, reflected in the concept of generating the smallest possible ecological footprint. The concept of achieving and maintaining sustainability is not always about sacrifices. Consider the economic and business opportunities that cities and their enterprising entrepreneurs are able to achieve by becoming experts in what they produce and service. For instance, hundreds of thousands of new jobs have been created by the German Feed in Tariff dealing with environmentally positive businesses and applications in alternate energies in wind, solar and biomass sectors.

But more can be done, e.g. in terms of ICT/ digitally enabled green plans, wind developments, solar strategies, green roof development, implementing green transportation strategies (transit plans, alternate movement systems), smart grids and ICT enabled smart metering, or sustainability-based digital business opportunities.

ALAIN VIALLIX, Director Public Affairs, Alcatel-Lucent, France, [www.alcatel-lucent.com], provided a brilliant comment on

Transforming Solutions for a Sustainable Planet

Alcatel-Lucent's strategy towards eco-sustainability focuses first on reducing the companies own carbon footprint. Second, on developing eco-sustainable networks and third, on enabling a low-carbon economy. Alcatel-Lucent's large initiative for the future is the GreenTouch initative.

In 2007, Alcatel-Lucent committed to reducing its carbon footprint by 50% by 2020, involving 100% of its workforce in the process. It is improving insulation in its buildings, installing more energy-efficient lighting and minimizing the need for travel by enhancing the company's videoconferencing capabilities at many of its facilities.

The second priority is to produce networks that are more efficient than the current ones. The number of smartphones is expected to be 32 times higher in 2015 than in 2010. This will lead to a tremendous amount of energy consumption by operators and at the end of the day also to tremendous cost for these operators. For instance a big French operator – the first supplier now – is not equipment vendor anymore, but an energy supplier.

Looking further at the 2% emissions in powering our networks, we are faced with the challenge that continued global use of the networks with additional users and content from video and wireless applications will increase the carbon emissions from the current 300 metric tonnes of CO2e to a much greater number. If we apply all the technology we know today about reducing carbon emissions and power consumption by the network - the best we can do is stay level in terms of environmental impact over the next 10 years. It will be a fight just to stay flat. Doing nothing is not an option.

High Leverage Networks (HLN) are designed for energy efficiency. The goal is to save 69% in power consumption and 75% in floor space due to increased density and efficiency at the packet transport layer. A typical HLN approach is estimated to save 1.1 million kilowatt-hours per year in the 5th year.

Alcatel-Lucent's next-generation chip FP3 opens the door to a faster, smarter, and greener Internet. In addition to a fourfold performance improvement compared to the current industry benchmark, the FP3 processor is also designed to reduce the environmental impact of IP networks, consuming up to 50% less power and taking up 30% less space within a service provider's premises.

Energy for wireless networks have to become more efficient. Alcatel-Lucent is working on a more efficient energy distribution through lighter sites. LightRadio was launched this year is a small cube that is going to replace the big boxes under the antennas. It will reduce energy consumption of mobile networks by 50%.

In 2009, Alcatel-Lucent announced an Alternative Energy Program that helps service providers quickly and cost-efficiently deploy wireless networks even to areas not served by electrical power, in all range of climates and geographies and under all deployment conditions. It is possible to have an energy mix to optimise energy supply.

Enabling effects are on energy, transportation and logistics, healthcare, smart communities, cloud services.

The GreenTouch initiative was launched two years ago after the Copenhagen Summit. For the time being, networks have been designed for efficiency and speed but not to take care of energy problems. The goal is to have networks in the future that will consume 1 000 times less energy than the current ones. This means that the energy use for one day now will be the energy consumption of 3 years of a network in the future. GreenTouch brings together leaders in industry, academia and government labs. With its launch by Bell Labs in January 2010, the consortium also has issued an open invitation to all members of the Information and Communication Technology community to join forces in reaching this ambitious target. A first pilot should be launched in five years from now.

ANTONIO SALVATORE GRAZIANO, Vice-President European Public Affairs and Communications, Huawei, Belgium, [www.huawei.com], delivered an excellent and stimulating discussion on

How Huawei's Solutions Address the Challenges of Powering ICT Network

Huawei considers environment as being of primary importance. Apart from ethic reasons, this is what many companies do as it also becomes a competitive advantage. Huawei has set up an internal certification system, which is based on international standards and which basically has put together a set of standards that each and every product produced by Huawai has to meet. Moreover, the company has also set up some internal targets of what they want to achieve. As part of this process, Huawei looks at the entire lifecycle of its products – from raw material procurement to the final disposal and waste of the equipment.

In addition to that, at the end of 2010, Huawei has signed a voluntary agreement with the Chinese MIIT. The agreement states that Huawei will reduce the overall consumption or emission from its equipment by 30% by 2012, with 2009 being the baseline. Since then, the company has made some major improvements in terms of energy efficiency.

More and more requirements are placed on networks and it is critical to ensure that a network functions in a efficient manner. Therefore, it logical to look at the entire network and try to analyse those areas that are consuming power and where improvements are possible and obviously how all this fits in.

The analyses have shown that most of the energy consumption in networks are due to switching and routing, data access, data centres and radio sites. By analysing all this factors, Huawei has come up with a number of areas where specific improvement was possible. It is worth mentioning that the areas of improvement is the dimensioning and the overall footprint – the physical footprint of the site – the efficient process in terms of new technology, new radio systems, the efficiency of the electronic equipment, remote monitoring, the use of renewable energy and the efficient access.

An example is the high density BTS system that Huawei has provided to China Mobile. By maintaining the same QoS the system allowed to reduce the overall physical footprint by 80% and also to improve the energy efficiency by more than 30%.

Another example is the SingleRAN (Radio Access Network). It is a network that combines UMTS, GPS, and LTE in one radio network. By using this, it was possible to substantially reduce the overall consumption of the network. Corresponding to a study carried out in

cooperation with Vodafone Spain, SingleRAN reduced the overall consumption by nearly 67%. The additional benefit of that was that it also reduced the amount of energy required and hence reduced the costs for the operator. QoS was maintained, if not improved. Using SingleRAN eliminates the need for replacement of the network because it is easily upgradeable. Furthermore the overall unit has become more compact, which also reduced the physical footprint.

Another improvement made is by analysing the data traffic. Huawei has developed some dynamic software which analysed the data traffic. By using this software the company managed to achieve an improvement of more than 20%, cutting the overall energy consumption and improving the overall efficiency of equipment.

The last example is the cooling solution. Again, this is an area which has been long-time overlooked and which bears a considerable potential for energy savings.

Huawei believes in global standards, especially for environments. Having a globally harmonized standard will add to the benefit and will create this overall improvement to the environment.

Etienne Gehain, R&D Coordinator, Corporate Smart Energy & Environment, Research & Innovation Division, GDF Suez, [www.gdfsuez.com], presented some very striking and interesting reflections on

Smart Energy & Environment
"Be SMART or Old-fashioned"

Smart grids represent a great opportunity for the energy sector, because it is the marriage of two worlds: one that is usual to the energy sector, which is the business application developer, from generation, transmission, trading, retailing, service provision etc, the other one is the world of ICT, with interface editors, IT infrastructure, telecom operators etc. A new type actor in the middle starts to develop, which is the integrator who basically must make those two worlds meet correctly and implement the good things from both worlds to provide new value.

The three actors, the service providers in energy, the integrator and technology solution providers might be willing to do the same things and sometimes those different types of actors are competing in new fields. There are many players involved and some even have double or triple positioning in the value chain. Service provision is a business of energy. The energy industry is meting many new actors, collaborates with them -- and sometimes disagrees.

Smart concepts impact the entire energy value chain – from the generation to the supply of services, not only in the domain of electricity, but also in different other utilities sectors, such as gas, heat, water and even waste.

Smart metering is a world of itself. It is a new kind of box able to integrate all the smart appliances, e.g., home automation or domotics for the retail client - or similar things for industrial clients. But also electric vehicles as well as the whole field of demand and response that can interact with different layers of the energy industries, starting with trading that can initiate some demand and response to benefit from particularly interesting moments in the market, or distribution transmission, which is basically where smart grids will be located. But also renewable energy and finally the notion of aggregating either local

production or local flexibility and availability at the client side, either through storage or non-consumption. Smart grids impact everything related to electricity and even energy storage, because you can have decentralized storage/ very small storage placed in millions of places, and you can leverage those with smarter technologies.

GDF SUEZ is involved over the whole value chain.

Many things are happening in the smart area, starting with smart grids. In Italy for instance, 32 million smart meters have already been deployed. But there are similar initiatives in Sweden, in the UK or France, which has just finished some tests and decided to roll out 35 million smart meters by 2017.

It is not a question whether the infrastructure is present or not, it is present. We can get the data and we can even host and treat them. But however, even if we can understand the data, we are still far from being able to act upon those data in a very smart way. It is one thing to collect data and to understand it and it another thing to provide efficient energy and things that will interest the citizens. There is still a lot to do.

HERVE RANNOU, President Items International, France, provided a visionary and inspiring insight into

Smart Grids –
When DIGITAL is Going to Change How the Energy Works

The energy market is facing a kind of Gordian knot: on one side there is the pressure of the energy production and the increasing energy consumption, on the other side, we try to find new energy sources -- but one point among others is that technically, at least in Europe, the network can not accept more than 30% of renewable energy in a peak, because renewable energy is not stable. This is a technical constraint. Smart grids represent one solution for making the network more stable. There is a vital need for smart grids as network of the future and we will have to face a totally new challenge in network management.

Another point is that local authorities become increasingly interested in smart grids. Not only in the context of becoming smart cities, but also because they feel the pressure of their citizens as regards cleaner energy, low carbon emission etc. However, they have to comply with legal obligations: if a (European) city directly or indirectly invests in the energy production, they would face local constraints, because if a city invests in something it has to be in the interest of its citizens. But as the network is built today, the energy would be produced and then integrated in the world network. In order to provide energy only to the citizen's own benefit, a new network architecture and management would be needed.

On the other side of the grid are the customer. Smart meters is the new box at home. And depending on the company coming from the energy sector or the people coming from the ICT network, partnership between could be difficult. This kind of smart meters is managed by one player providing all solutions on the shelf. This the dominant model today. A second model is the Apple model: there would be a platform ecosystem where a third party would be able to propose their own application. It is not necessarily important for the dominant player, in this case Apple, to know how you will earn your money. You just enter the ecosystem with your own business model and you propose your application. A third model is the energy Google model. Google wants to be at the heart of the ecosystem – it does not want to control anything. At the heart of the ecosystem it will earn money in many applications, both directly and indirectly. Some ICT companies are already working on that kind of model.

The smart cities approach is not at all a technical approach. It is project management by people coming from urban regions. They have the power as they need the technology, but these projects are not driven by people coming from the ICT sector.

There are so many projects going on in the context of smart grids. China, for instance, will invest 500 billion USD in a new energy plan, and among this 90 billion USD in smart grids.

ALFREDO RICCIO, President of Fondazione Italiana Nuove Comunicazioni (FINC); Administrator Unico de Cartesia, Italy, shared some excellent reflections about

FINC: a player for sustainability

The Italian Foundation for New Communications, an international Think Tank for Internet business solutions, was founded in 1999. Its mission is to transfer ICT to the Italian SMEs, in order to amplify and accelerate their competitiveness. To find out winning solutions FINC has collaborated with the best global ICT players. The business model is twofold: Field trials of new solutions with SMEs and local public administrations in partnership with industrial districts.

Examples of field trials with local public administrations are: a trial called “Area Industriale Piano Tavola” in Catania); a video and RFID based project for the telemonitoring of goods transportation for weight counting along the Catania-Messina route; telesurvaillance of Circumvesuviana Railways (station and trains) in Naples; the telemonitoring of transits of pleasure crafts -- first in Santa Teresa di Gallura, Sardinia, and later adopted by many other island’s harbours; and SEA Sentinel, a marine security system in Lazio.

Due to a solid partnership with industrial districts, it was possible to create a wireless broadband network (Wimax) for the marine district of Lazio South (Consorzio SIRENA). Furthermore, new ICT services for pleasure boats in Lazio (Consorzio Porti Laziali) and ICT for industry development in Viterbo district (Consorzio Ceramiche Viterbesi) were realized.

Nowadays ICT is the key innovation enabler in almost any technological domain and it changed the social behaviour of most of the people in Europe. Europe is looking for leadership in social innovation and creating a “Balanced Progress” framework. FINC intends to push progress in social terms, that means progress as fundamentally political and value driven. FINC is committed to enlarge the stakeholder community, starting from the citizens, and focuses on the so called “Smart Cities”. A disruptive case is the reconstruction of L’Aquila after the earthquake. FINC’s proposal to the Italian government for a smart reconstruction, involves all the infrastructures (ICT, transport, energy healthcare) to solve complex societal challenges.

Zero emission vehicles and smart grids in Smart Cities are among our key engagements. HiZEV is an Italian project for high performance electric and full-digital cars, set up by SMEs committed to the leadership in this forthcoming market. Citizen empowerment for urban energy distribution and co-production, seeing the city as a system-of-systems. FINC’s R&D&I partners are the Dipartimento di Ingegneria dell’Università La Sapienza di Roma, POMOS (polo per la mobilità sostenibile) and the Gruppo Claudia Bettiol e Partners.

HiZEV is made in Italy design for automotive. It is about joining SMEs research centers and universities, covering the high-end niche luxury eco cars (EU, US), and developing effective zero-emission full-digital high performance cars.

DAVID WOOD, Councilor, Newcastle Upon Tyne City Council, United-Kingdom, provided a very interesting and impressive demonstration of

Newcastle: A Green Case Study

Newcastle is in the North-East of England and was at the forefront of the industrial revolution. Today the city is at the forefront of economic growth as part of a change to the knowledge and service sectors.

In England and Wales the Climate Change Act 2008 adopts an 80% reduction by 2050 from a 1990 baseline. This includes an interim target of 34% by 2020. It was assumed in the Climate Change Strategy that there has been a 14% reduction from 1990 to 2005, mainly associated with a reduction in coal power. Newcastle is also one of 12 authorities to sign up to the EU Covenant of Mayors on Sustainable Energy. This commits the city to go beyond a 20% reduction by 2020. As per the requirements of the scheme, the city has a Sustainable Energy Action Plan, which outlines its baseline, and how Newcastle intend to make savings, as well as estimated costs. This has then driven development of the action plans.

Newcastle Warm Zone was set up to make homes across Newcastle affordably warm and energy efficient. Insulating homes delivers a double set of benefits. The primary idea behind Warm Zones was actually to reduce fuel poverty by reducing bills to households but it also has the knock-on effect of reducing CO2 emissions.

Newcastle is running a district heating scheme which powers almost 1,800 homes. But there is also is a fair amount of work going on underneath the freight partnership. This will include updating the Tyne and Wear freight maps, installing additional electronic Truck Information Points, producing electronic abnormal load maps, and reviewing coach parking and drop-off facilities.

An ordinary terraced house in the area represent by Councilor Woods is being transformed into one of the greenest homes in the country. Green experts conducted a series of sophisticated tests before refurbishing the property shown last year, using a grant from the government-funded Technology Strategy Board. The experiment, which aims to reduce the house's carbon footprint by a whopping 80% shows how technology holds the key to greener social housing. An external shell makes the house air tight so it traps heat from sunlight, body warmth, cooking and even the family's dog, with no need for conventional heating. Other measures include external insulation panels, triple glazing and smart metering so its energy consumption can be monitored.

The city is also changing its approach to IT by delivering efficient architectures and reducing energy consumption (e.g. cloud computing), merging the wide-area networks, investing in the technology to minimise environmental impact (mobile working, home working), reducing server hardware, installing a power management platform, and consolidating regional data centres to reduce energy consumption.

On transport Newcastle is doing a number of things: Among others, a trial of 44 new electric passenger vehicles in the region, including cars, taxis, executive minibus, two saloon cars

and two Range Rovers. Or, delivering 1 300 EV charging points (worth 7.8 million pound) across the North East - installed 200 to date, with 50 in Newcastle. Recently, 26 new Enviro400H Euro 5 Electric Hybrid buses were added to the fleet, aiming to reduce carbon emissions on these routes by 30%. A 15 000 square ft. Freight Consolidation Centre was created to significantly reduce HGVs in the city centre. Strategically placed close to the major road network, it serves 2 large retail developments and Newcastle city centre with electric vehicles used to transport the goods to town. Retailers can increase store selling space, save on staffing costs, and benefit from flexible delivery patterns as well as packaging removal and recycling. Lower numbers of vehicle journeys and mileage reduce emissions and congestion and improve air quality.

A new smart card has been introduced on the light rail system followed by introduction on buses and taxis. Other applications will allow for use in libraries and leisure centres and also personal ID and access to secure areas. In the UK all elderly and disabled residents are entitled to free travel on buses but Tyne and Wear we have expanded the use to include travel on the award winning light rail system (Metro).

New ticket machines were introduced across Tyne and Wear to allow for the most modern access to transport for residents in the area.

Some of the future projects are the development of a weather network in partnership with schools to increase climate modelling capacity. National projection models are being used to help understand the likely impacts of climate change – such as changes in temperature and rainfall as a result of different levels of emissions, over differing time periods. These can help then plan to provide services.

In addition to rolling out 700 charging points, Newcastle is also planning to develop the expertise to roll out installation services on a regional level, enabling the city to make a profit whilst helping green the overall infrastructure in the North East. In connecting solar panels to the grid, Newcastle is aiming to take advantage of the feed-in tariffs from national government.

To conclude, to do nothing is not an option. We need to leave a lasting legacy – because if we do not do it, then who will? Let us stop taking about it, and just get on and do it!

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Q&A

The question addressed to **Hervé Rannou**, Items International, concerned the idea to have huge energy companies on the one hand and ICT initiatives on the other and no one seeming bringing the two worlds together. What is the missing link between becoming smart and the technologies underpinning smartness?

In his answer Mr Rannou stressed that they actually do work together. The smart grid projects managed by energy companies also have big IT players in their project consortia. The fact is that energy companies consider ICT as a tool and some ICT players consider that energy is a real new market for them. To some extend, the situation is comparable to what has happend in the context of convergence -- for instance between TV and telecommunication: It was obvious for many years that these companies will work together but maybe compete in the same market. Some of the Telcos considered image and video being part of their future market. So the question at the end is whether the market is growing or not. And if it not really growing, do they have to share the revenues at the end? As regards the energy sector, we do not know exactly what will happen, because we have energy players who provide energy and many people ask them to be more efficient, which means to earn less money. This is the paradox and it is not sure if they will be able to deal with that. But if all players are going to work on the same value chain, it is obvious that at the end they are going to try to share the cake.

Last week the G20 Summit took place. It mainly concentrated on finance, but there were a lot of other discussions too. For instance there was also a Working Group on energy efficiency. **Alain Viallix**, Alcatel-Lucent, who participated in this group, was asked to comment on the Working Group's four main conclusions related to energy efficiency.

Mr Viallix explained that is was the B20 who talked to the G20 leaders. There were 12 Working Groups and one was dedicated to green economy. The government leader that was presiding this Work Group was Felipe Calderón, the President of the United Mexicain States – someone who is very knowledgeable in green and many leaders in the developed world could take an example of the knowledge he has shown on this occasion.

The four very clear conclusions the CEO's presented to President Calderón were:

First, free trade for green goods and services to eliminate any barriers that could be tariff or non-tariff. Second, to put a price on carbon. That is to say, that each time you buy or you consume something, there is a carbon price in it, which you can also offset if you want. This requires some good offset mechanisms. Third, to eliminate subsidies on fossil fuel consumption that still exists in some countries in order to make people pay the real price of fossil energy. The fourth conclusion was dedicated to the ICT world: to really scale up the support they are giving from green technology in matters of private and public research and to make more resources available for this support.

We are talking a lot about smart cities. Most of the new cities are obviously growing in what is still called the "developing world", even if most of the time the wording is bad. The panellists were asked how do they see the move going on: Is there one solution for promoting green cities from Qatar, Saudi Arabia, China, or Brazil? Is this solution also applicable to the recreation of a smart city at the European level, such as the example of Newcastle?

David Wood, Newcastle Upon Tyne City Council, stressed the difficulty that it all boils down to finance. If you haven't got the finance, it is difficult to do. This might be different for a new city starting from scratch. A city that has its infrastructure will either have to adapt it or knock it down and rebuild it. And it all boils down to finance at the end of the day.

Etienne Gehain, GDF Suez, answered that it is not possible to apply the same recipe in the so-called developed countries where access to electricity can be developed -- if it was not developed yet – with an investment of some hundred euros per households, compared to places for instance in India, where you need to develop a solution for a few euros. This does not mean that it should not be done or can not be done, but not by applying the same model.

In addition to that, there is a need for good cooperation between energy utilities' and ICT players. To do better and to achieve one euro access points, you need to involve the user, the consumer -- and this is a big revolution. Before, energy was just transported and distributed. Now the collaboration of the user is needed, who will take decisions that will affect the network. ICT players have a long relationship with customers that are at the same time actors. And here, the energy sector can learn from them. It is not a question of selling more energy to earn more money, energy companies will earn more money by providing more services to their clients.

A comment from a Helsinki representative in the audience stressed that smart cities have to look at the end user. Smart services won't be accepted by the users if they did not correspond to what they want. Helsinki is a rather advanced smart city which looks very much on the services from the point of view of the end-user. Helsinki has been chosen the World Designed Capital in 2012 -- not in terms of aesthetic design, but the design of the services, the design to become a smart city, designing things in a way that take into account the end-user/ citizen. People get services for what they need. You can not force someone to become "smart", if you do not ask want he or she wants.

John G. Jung, Intelligent Community Forum, commented on this by underlying that at the end of the day we are talking about end-users, because if you are not demanding change, it will not happen. The same thing is from the end-users' perspective. If you are willing to pay and if you are willing to pay more, you will get more services, but it is based on an attitude: Are you willing to pay more? Your taxes will increase if you are demanding more -- are you willing to go this route?

On the other hand, there are also communities that are smart and that are beginning to take advantage of the lessons that they have learned and they are able to convert them into businesses and economic development, which can then help offset costs for the end-user. What does this means? You are able to become an expert in the field of environmental technologies and sustainable development and help other cities as a result of that. Think of it not just an individual who is demanding or willing to pay more for services, but as being able to create a centre of expertise and a centre of excellence around environmental

technologies. These could be models for the best transport system in the world, the best solar centre in the world etc, This can help to create an energy cluster in your community that helps to offset these costs.

The last question addressed to the panel concerned the money needed to invest in such services and infrastructure. How can it economically feasible especially for developing countries considering the lack of resources that they have?

Antonio Salvatore Graziano, Huawei, supposed that it is not a discussion about cost, but more a discussion about demand. If there is demand, the cost is a relative issue. As long as there is demand, the question of cost will be self-regulating.

Hervé Rannou, Items International, pointed to independence as the keyword -- independence regarding energy. Be it cities or countries, they want to be as independent as possible regarding their energy consumption. Renewable energy could be a serious option for becoming at least a bit more independent.

Etienne Gehain, GDF Suez, added the notion of externalities. It is difficult to make a business model with just normal cost and price and offer and demand, if you do not take into account the cost of congestion. Then, you may find a way, and try and see. At the end it will bring enormous benefits. It is not easy and it is the responsibility of the elected political representatives to take those kind of decision. Experimentation is the key.

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Developing Women Talents:
The Winning Strategies to Nourish the Pipeline

For the second time, the organizers of the Global Forum in ICT have handed over to WIL the mission to engage the key ICT stakeholders gathering annually to this prestigious event, in a debate on promoting women in the information society. Several profound speakers brought forward best practices to nourish the female talent pipeline. The event was also an opportunity to officially present the WIL Women Talent Pool program.

The framework was set up by **Mary Honeyball**, Member Committees on Culture and Education & on Women's Rights and Gender Equality of the European Parliament and Cecilia Castano Collado, Professor at Universidad Complutense de Madrid, who is running extensive research on gender and ICT.

MEP Mary Honeyball warned about falling under the complacency, that women have already 'done it' and called upon women in leadership positions to keep campaigning themselves. The MEP also stressed that in order to improve gender balance there is a need to focus on the practical arrangements, such as sorting out the work-life balance. We should take steps towards reaching more acceptance of flexible/part-time working including fighting the culture of presenteeism, in which it is those who are 'there', e.g. going for drinks after work, that aregetting promoted. We also need to start changing attitudes about parental responsibility. Affordable childcare should become part of the very fabric of our society.

Cecilia Castano Collado, Full Professor, Universidad Complutense de Madrid, spoke more specifically on women in ICT and shared her perspective on smart, sustainable, inclusive growth being gender inclusive growth. Dr. Castano took the opportunity to present the findings from a 2008 survey on ICT research groups in Spain. Gender diverse organisations and institutions are more flexible and open, closer to the people and society. What is needed, she argued, are changes both in cultural practices and policies aimed at institutional and cultural bodies to increase women's participation and improve their access to leadership positions. Dr. Castano also stressed the importance of improving employer practices, the challenge being reforming private and public institutions in the field of science and IT. Another topic touched upon by Dr. Castano was the approach to ways of attaining a gender-balance - in her view we should change from the insistence on the presence of women to the insistence on having women on high-level positions.

Drawing on her 10 years of experience in the field and recent research on the topic, **Samia Melhem**, Senior Operations Officer Global ICT Department, World Bank Group, discussed the issue of ICT adoption and production by women in developing countries. Mrs Melhem stressed that in the developing countries there are huge disparities in how men and women adopt ICT and a lot of stigma associated with women; using the internet or a mobile by a woman is seen as daring. When the World Bank builds telecenters in the developing world to provide free trainings, it is usually boys and men that take advantage. Therefore there is a

need for proactive policies to ensure a certain level of women participation in each project. One way of approaching the issue applied by the World Bank is hiring gender experts to conduct trainings on how to use mobile platforms. Mrs Melhem also discussed the participation of women in developing countries in the science and technology fields. There is a stereotype that women can't be successful engineers or computer scientists. According to Mrs Melhem's view, one solution to the issue is to create incentives – connecting science and technology with jobs. In order to build the talent pipeline early on, messages at primary and secondary schools need to be reformed.

Ingrid Andersson, Senior Executive Advisor at the Swedish Patient Certificate Scheme, shared her experiences working on a program with the OECD on fostering women entrepreneurship in the MENA region. According to research, women drive job creation, economic growth and social cohesion. When women intervene in society, democratization process is better implemented, investments in health and education and the creation of new companies being among the first visible results.

Jo Perrin, Director of International Public Relations, Verizon, touched upon the power of technology to create opportunities for women and the ways in which women can apply technology to their benefit. Mrs Perrin stressed the importance of networks - they give women a voice, more access to information, education, information and ideas and opportunities to share on a global basis. She also spoke about technology enabling us to create our own circles of trust, which can help people rise to higher levels of leadership. She also explained how Verizon advances its female employees through its own women's network. The idea is focused around mentoring, community outreach, removing the geographical barriers and create Verizon committees across Europe and the globe. As a best practice case, Mrs. Perrin also presented Verizon's 'Getting To Know You' programme, giving to women wanting to advance in the organization access to the senior leaders and organizing live sessions, during which women on top positions share their experiences and talk about their career paths.

Margot Dor, Director Partnerships & EU Affairs, European Telecommunications Standards Institute, presented a different view on the issue of female representation. She advised women to play the system, rather than fight it.

Alison Birkett, Asia Coordinator; Japan, Korea; UN Broadband Commission at the European Commission, stressed that the EU is concerned about the issue of the pipeline of women in ICT. The EU commission has set up a code of best practices supported by around 60 ICT companies and organisations in Europe, which looks at several aspects including education, recruitment, career development and returning to work after leave. Solutions to some of these issues are in the classroom, not just the boardroom; role models of successful women should render themselves more often. Mrs Birkett also spoke about the perception that women are not very good at technology, drawing on a unique example of the testimony of Ms Kate Craig-Wood, Female Entrepreneur, Technology Speaker & Green IT Expert, who underwent a gender reassignment and claims, that after the sex change, it has become very difficult to get the 'guys' to take her seriously when talking about technology. To conclude, Mrs Birkett listed possible solutions to push things forward: networking, mentoring, promotion and understanding.

During the event we have been presented research results, which show that gender diversity is related to excellence and innovation, women drive job creation, economic growth and social cohesion. When women go in, we can observe a better democratization process, investment in health and education and new companies creation. According to our guest

speakers, in order to move forward and we need to go into the younger generation. There is a need of changes in the classroom, not just the boardroom. We also need to address the issues of work-life balance. Technology can be used by women to their benefit; it enables us to create our own circles of trust, e.g. networks, which can help people rise to higher levels of leadership, as well as makes flexible, family-friendly working more feasible.

Women Talent Pool

During the second part of the event, we took the opportunity to present the Women Talent Pool - a 36-months programme, built to help women on mid-level management positions grow professionally, through offering them networking and learning opportunities.

Brigitte Dumont, Deputy Group HR, Executive Vice-president France Télécom, and **Elena Bonfiglioli**, Senior Director Health EMEA, Microsoft, explained why they chose to endorse this program and how it comes in prolongation of their companies' strategy to boost women's participation.
Their appeal to support the next generation of leaders was strengthened by the testimonies of the WIL members directly involved in the program, as well as two promising Talent Pool participants.

Katherine Corich, CEO Sysdoc, wants to be a coach because she believes that the challenges females face in the workplace aren't around talent; there is a serious need for change in the workplace and organisations that lead some of the big decisions in the world. According to her view, this can be achieved only with diversity. She would like to see young women being coached to learn to challenge and deliver the change we need; "I want to see become better leaders to make the world a better place. I also want to see much, much more job creations and I think both of those are possible". Katherine Corich also offered a piece of advice to younger women, to never compromise on themselves or their own values. She believes that she will also learn from the programme - interacting with new people and new cultures gives you a perspective perhaps you haven't had before.

Sabine Lochmann, General Manager Market Access, Johnson & Johnson Medical Companies noted, that when want to reach a leadership position, they are entering into competition with males. A platform such as WIL allows women to share their views and insights about leadership .The piece of advice Sabine Lochmann would give to women, is to trust in themselves and their vision about what they want to do and to stick to it. She believes that when we are giving, we are also receiving – globally and individually growing, thanks to these exchanges, talks.

The experience **Isabella de Michelis di Slongello**, Vice-president for Public Policy and Government Affairs, Europe, Middle East & North Africa, Qualcomm, shared with WIL members, is that it is the DO minded attitude, that really makes a difference. "To work in a global environment for one of the 500 Fortune companies, operating in 5 different time zones, be a mother, have a social life and still be doing some sports... it's a challenge" she stated. It is nevertheless feasible and young talents need to know that these realities exist.

The testimonies of Role Models were followed by a short introduction of two Emerging Leaders: **Aurélie Feld**, Deputy Managing Director, PlaNet Finance and **Marie-Hélène Briens**, Sales manager, Top Markets, France Télécom, who spoke about their expectations from WTP. What they are looking for in the programme, is access to female role models, opportunities to develop their skills and competencies, being able to learn how to advance their careers.

After hearing the motivating testimonies of the Role Models and Emerging Leaders, we are confident that the programme is going to turn out to be a success and a learning experience for all of its participants. We are looking forward to the January kick-off and being able to share with you its outcomes.

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Nex Internet Extensions
(gTLD – generic Top Level Domain)

Hervé Rannou, Co-Founder and CEO of ITEMS International chaired a session on the new gTLD programme. Distinguished speakers included ICANN Board Members Bertrand de la Chapelle and Sébastien Bachollet, senior ICANN staff member Olof Nordling, Keith Drazek, Director of Policy at Verisign, Desiree Miloshevic, Senior Public Policy and International Affairs Advisor at Affilias (.org, .info), and Brian Cute from PIR (.org). The session focused on the rapidly approaching application deadline (12 January to 12 April 2012), the modalities for applying via ICANN's TLD application system (TAS), and technical and financial issues regarding the application process.

Bertrand de la Chapelle spoke out in favour of boldness and the need to open up the domain name space even if we cannot predict the precise outcome. "Ten, fifteen years ago who could have predicted where the Internet would be today? The Internet has proven to be a fantastic unleasher of talent and innovation, and it is critical that the Domain Name space should benefit from this in ways that other parts of the system have. The new gTLD programme may not be perfect (major technological innovations rarely are) but it will, undoubtedly, increase competition and be for the good of the global community of Internet users as a whole." He went on to describe how the gTLD programme is one initiative among several others at ICANN including the internationalisation of the DNS with the introduction of top-level domains in non-latin scripts, e.g. Cyrillic, Arabic, Chinese. (The so-called idnTLD programme).

Martin Sutton, Head of Group Fraud Risk and Intelligence at HSBC, spoke about the strategic opportunity for large corporations, notably for the banking sector, which the new gTLD programme presents. Banking institutions with their own top-level domain will be able to offer their clients unprecedented guarantees in terms of net identity and protection against phishing scams. But he also underscored the potential risks for large banking corporations, for example if a company merges (as HSBC has in recent years), and changes name.

Brian Cute discussed the Public Interest Registry's (PIR) much publicised application of for ".NGO" and ".ONG", two new extensions which will be proposed to the international NGO community. The new extensions will give the NGO community improved visibility and 'searchability' on the net as well as guarantees regarding their authenticity as NGOs. A non-profit organisation itself, PIR has committed itself to reinvesting all profits generated by the NGO/ONG extensions for the benefit of the international NGO community.

The panel discussed ICANN's 'Continued Operations Instrument' (COI), an insurance mechanism in case or registry failure that has been hotly debated in the press, notably since the ICANN meeting in Dakar (October 2011). Currently the gTLD Applicant Guidebook requires applicants - up front - to provide sufficient financial resources to cover the continued operation of basic registry functions for three years. Not a problem for global applicants, but a heavy financial demand for smaller, city or community-level applicants. Potential TLD

applicants should certainly bear in mind this additional financial burden when preparing their business plans.

Hervé Rannou, spoke about the **The gTLD Team**, a consortium of consultants that was formed in 2010 in direct response to ICANN's new gTLD Programme. The objective of the gTLD Team is to assist public and private organisations keep abreast of transformations affecting the Domain Name System (DNS), and the implications of the recent decision to open up the gTLD space.

'The new domain system is set to transform the brand marketing landscape'. We are rapidly moving from the tried and tested world of the .Com to the brave new world of the .brand. Yet many companies still don't know what is about to hit them.' A recent survey by Melbourne IT Digital Brand Services found that an overwhelming 92% of organisations interested in applying for a new Top Level Domain (TLD) stated that their preferred choice would be their core brand name. Whether or not these companies fully understand the rigorous and costly process involved in registering their brand or the steps needed to prevent someone else from doing so remains to be seen.

ICANN has put extensive measures in place, including a protracted and costly application procedure, to ensure that the new domain extension is secure. The challenge for companies wishing to benefit from the new regime will be to understand the ICANN guidelines inside out. The risk is spending a great deal of time and money on an unsuccessful bid, or missing the opportunity to object to brand infringements.

Companies wishing to register their brand or an associated generic industry term have less than two months to do so. ICANN is accepting applications between 12 January and 12 April 2012 and it is unclear when the application window will be reopened. 'The worst case scenario for a company,' explained Herve Rannou, 'is for the corporation to devote valuable internal time and resources only to fail in the application process, or worse still, to see a competitor succeed.'

Global Identity Networking of Individuals - Support Action -- GINI SA[1]

Minutes of the GINI-Hearings

GINI-SA organized two hearings in connection with the Global Forum: The first hearing was dedicated to policy aspects, the seconds hearing was on business aspects.

To prepare the hearings, an invitation summarizing the project facts has been distributed to the audience, and a discussion note summarizing the main project facts and rising major open questions has been prepared.

This document gives the meeting minutes.

Meeting facts

The GINI Hearings have been held on Tuesday, 8th November 2011 between 2:30 and 5:00 pm. It was organized as a parallel session, co-located with the Global Forum in Brussels. A short introduction and invitation to the GINI-SA hearings has been made by Thomas Andersson in the Global Forum morning plenary session.

The meeting agenda is attached as an Annex.

Participants: 31 (7 GINI-SA members, 8 external panellists, 16 audience)

The eight external panellists have been:

- • On policy aspects:
  - Jos Dumortier (ICRI, KU Leuven)
  - Jacques Bus (DigiTrust.EU)
  - Jan Schallaböck (Data Protection Agency, Schleswig Holstein)
  - Aaron Martin (London School of Economics & Political Science)
- • On business aspects:
  - Steven Adler (IBM)
  - Takis Damaskopoulos (Open Innovation Strategy and Policy Group)
  - Olli Jussila (TeliaSonera)
  - Patrick Curry (British Business Federation Authority – BBFA)

GINI-SA was represented by: Thomas Andersson, Herbert Leitold, Pasi Lindholm, Lefteris Leontaridis, Andreas Pashalidis, Kai Rannenberg, and Brendan Van Alsenoy

[1] GINI-SA aims to investigate and establish the foundations for the architectural, legal, regulatory requirements, as well as the provisioning and privacy enhancing aspects, of a framework of user-centric identity management services. The project has been funded with support from the European Commission under the 7th Framework Programme.

Hearing on Policy Aspects

Thomas Andersson welcomed the participants. He briefly introduced the project and pointed out that the current situation on personal identity control is unsatisfactory. There is a need for policy and business measures. Thomas compared with the situation in the US and Japan.

Though there were invited panellists, Thomas invited the audience to consider the event an open roundtable.

Lefteris Leontaridis (GINI-SA) gave a general overview of the project objectives and basic concepts. The global nature of INDI and flexible User-Operator relationship are a key aspect. Lefteris pointed on the operator-driven model and that multi-corner business models should be supported.

Brendan Van Alsenoy (GINI-SA) started his presentation of legal aspects with pointing to the key policy initiatives going on. He referred to both the US National Strategy for Trusted Identities in Cyberspace (NSTIC) and ongoing EU initiatives such as the revision of the Signature Directive (Key action 3/16 of the Digital Agenda). He then highlighted the various elements of the legal framework analysed in the context of WP3, such as the European Charter of Human Rights (ECHR) and the Data Protection Directive, as well as the Reuse of Public Sector Information (PSI) Directive, the E-Commerce Directive and the Signature Directive. Policy and governance options were elaborated in light of the emerging concept of an "identity trust framework", ranging from self-regulation to government regulation, and highlighting the regulatory tools available at EU level. In conclusion he hinted towards some other avenues for improvement, including data portability and accountability.

Kai Rannenberg (GINI-SA) gave a presentation on privacy challenges. "Calling Home", i.e. whether an Identity Provider should get aware of whom a person has transactions with has been explained. Over-identification and "calling home" have been identified as challenges. Kai suggested user-centric approaches as a solution approach. Kai referred to minimum disclosure credentials (Idemix and U-Prove as implementations by industry). Statements by the audience and lively discussions took place during and after the presentations. The statements are listed at the end of this section.

Jos Dumortier (panellist from ICRI, KU Leuven)

On "how far EU should go on regulation of IdM and Trust services" Jos thinks that there definitely is a problem to solve. A need for regulation has been seen, in particular on mutual recognition. Jos thinks that regulation shall not be limited to the public sector. Jos said that he has no answer yet on how regulation should look like. Clarity should be provided, but probably not making it too binding, at least not towards the private sector (e.g., voluntary accreditation).

Jacques Bus (DigiTrust.EU)

Jacques started by referring to the European Commission and Council initiatives in relation to eID initiatives to emphasize that they are high on the agenda in the EU. Jacques summarized the conclusions of a Digital Enlightenment workshop which was held end of October 2011 in Paris. He mentioned that many transactions should be possible in full anonymity, but in activities in the Single Market there is a role of authentication. . For the sake of simplicity (and for ensuring proper reflection of what has been said), we quote the Paris workshop policy recommendations for a framework for mutual recognition and

interoperability of authentication and authorization services (taken from the "*Declaration on The Future of European Electronic Identity Management Digital Enlightenment Forum, taking the advice of experts together in a Workshop in Paris on 31 October 2011, considers that:*"). Such a Framework shall:

- *• Be embedded in a longer term vision for EU wide **personal data management** that respects privacy, gives effective control to the individual, and acknowledges the right of the individual to develop her own identity in a sound relation to the society she lives in.*
- *• Stimulate effective **standardization** of policies and protocols for interoperability and further innovation within the Framework and provide the necessary **regulatory assurance** for the development of new business models for a sustainable and scalable future infrastructure for personal data management.*
- *• Stimulate and facilitate the **take up of state-of-the-art technology** for user-controlled authentication and authorization, as designed in recent years to implement the rules and principles of privacy protection put forward by data protection and privacy commissioners and other experts in the EU and worldwide.*
- *• Ensure an appropriate governance model using adequate technology, which provides both **transparency and accountability** of personal data management processes, particularly by enabling both users and supervisory authorities to audit processes of data managers and controllers.*
- *• Encourage **multiple authorities** – from financial, educational, governmental and business sectors - to release validated attributes (a.k.a. claims) to individuals, so enabling them to use such trustworthy personal information for their own benefit and ensure a healthy competition for identity services in the digital single market.*
- *• Facilitate **separation of issuance and use of attributes** (a.k.a. claims), thus allowing authenticated anonymity and the possibility for users to revoke claims, as well as creating significant simplification and efficiency in the market*
- *• Encourage industry to enable individuals' **personal devices** (mobile, dedicated or embedded) to receive verifiable claims and present them over a network, thereby removing the dependence on inflexible technologies like dedicated eID cards while still allowing the latter to be productively used.*

The Digital Enlightenment Website is at http://www.digitalenlightenment.org

Concluding: INDI must fit within an EU framework and can help to create the EU framework. Thus INDI needs to cooperate with projects such as STORK. User convenience is key, i.e. the user shall not be bothered with too much interactions (referring to user control the data flow – too many 'pop-ups' kills functionality).

Jan Schallaböck (Data Protection Agency, Schleswig Holstein, appearing pro bono)

Jan clarifies that he cannot give a formal DPA position, but personal opinions. Jan considers trust frameworks a key aspect. Under identity management much more problems are addressed than just entity authentication, such as informational selfdetermination. He appreciates the fact that GINI has taken the approach of a trust framework. Dealing with trust in IT security is tough however; Jan takes the example of mobile phones and tablets where the user increasingly gets less control. Negative incentives (punishment) are referred to as a policy measure to enforce privacy.

Aaron Martin (London School of Economics & Political Science)

Aaron gives the advice to think of the type of operators that might be active in that area: From his Vodaphone experience he sees telcos (and probably banks) as well regulated on privacy. Social networks are less/not regulated. GINI seems to be a response to Facebook or Google+ (as examples of service providers). In Aaron's view, stronger penalties for misuse would be a good starting point.

Questions/Discussions:

This section summarizes the discussions during the policy aspect presentations.

Question Steven Adler: What problem is INDI solving – what is the pressing need for a European identity regulation that the world is not solving? Pasi referred to the business models and lacking economic opportunities of identity management.

A discussion on the ownership of personal data has been launched. Steven claims that the Data Protection Directive did not sufficiently address ownership in the digital age.

A question was given, why we call it ecosystem? Kai responded that a number of players are involved who "cannot live without each other". This is comparable to an ecosystem.

An additional question was given (Steven Adler) on "what is the harm" if an Identity Provider knows your transactions. Jacques Bus responded that the discussion should not be asked that way. The question should not be how something "should be done", but "is it needed" once processes move digital. After the discussion Steve again referred to the Data Protection Directive where in his opinion ownership in the digital world has not been well defined.

Support for GINI-SA was given from an audience participant out of experience from moving from the Netherlands to Italy. She thought that if GINI-SA was in place to carry out moving house electronically, that would have made her live easier.

Patrick Curry commented that user centricity leads to the need of levels of assurance. He refers to a four level model with self-assertion being the lowest. Patrick concluded that we will see authentication as part of national policy and that the legal basis is missing.

Tools do not always have the security needed, can security be built in? Jacques referred to EC thoughts on responsibilities of software providers. He thinks that best effort is needed to get liability for software security.

An attendant has concerns with reference to health care providers, how sectors and owners of databases can be engaged. As the discussion and presentations stand, it might be too technical.

Hearing on Business Models

Lefteris Leontaridis (GINI-SA) started the session with an explanation of the multicorner model. He refers to current IdPs (Facebook, Google), banks, telcos and Cloud Providers as potential operators.

Pasi Lindholm (GINI) kicked-off with referring to Internet-Megatrends such as search engines, personal relations/social networks, mobile applications and smart phones. Pasi claims that strong business cases for identity services are not too visible yet. The standard currently is a registration page where the user enters data and potentially background checks are done. Pasi gave www.intelius.com as an example of finding people and their identity data.

Pasi states that showing "being honest on the Internet" can be a business case. He refers to selling used cars on the Internet as an example where we currently see lots of problems. Users have been willing to pay for being identified in such a service.

In the traditional model, service providers pay. Once we are in a multi-operatormodel, there are transfer fees. This leads to models based on transaction charges.

The alternative model seems to be that operators charge their customers – Users and Relying Parties. Thus no transfer fees are needed.

Takis Damaskopoulos (Open Innovation Strategy and Policy Group)

Takis questions whether privacy is still a concern for the younger generation. He says that culture is more fragmented. GINI might be asking too much if the users manage their identity. Do they have the capacity or willingness?

Olli Jussila (TeliaSonera)

Olli referred to the SIM-based strong authentication Sonera launched. The reason was not for the sake of authentication, but for services. Therefore, Olli likes the usercentric idea of GINI-SA, as a telco operator is mainly involved in the person-toperson services (a person calling a person).

Olli refers to Estonian elections enabled for mobile eID. Voting every four years is however not enough for business models, it needs more services. At the end, users make the choice – i.e. therefore providers search for services. A basic requirement for a telco operator is that business models work throughout Europe.

Patrick Curry (British Business Federation Authority – BBFA)

BBFA came out when the UK eID scheme collapsed. It shall establish an UK PKI federation. There is no one that fits all (government employees, businesses, citizens). The question is if a "level 2" transaction (financial transactions) are possible. He sees reuse of credentials (Post, Experion, Paypal, …) business cases for financial transactions in the UK.

A business case can be established through reduction of fraud. Patricks refers to NSTIC as eID for each US citizen. Therefore, service providers such as Amazon might give reductions to "NSTIC costumers" because they have verified identity.

The high-assurance models seem to be well defined. Business models should evolve around financial transactions.

Steven Adler (IBM) had to leave early, but retuned later. After Patrick's talk, he considered his question, what problems need to be solved, answered.

Annex: GINI Hearings Agenda
Global Forum, The Blue Room, 14.30 November 8th, 2011

1. Introduction: (Thomas Andersson – IKED/GINI; Pasi Lindholm – NorthID/GINI)

2. Panel I – Policy Hearing: Enabling User-centric Identity Management Solutions: Recommendations for Policy

e. The EU regulatory framework accompanying user-centric IdM (Brendan Van Alsenoy – ICRI, K.U. Leuven – IBBT /GINI)
f. Privacy challenges and solutions within the INDI ecosystem (Kai Rannenberg - Goethe University, Frankfurt-am-Main/GINI)
g. Comments by panellists (Jos Dumortier – ICRI, KU Leuven –IBBT ; Jacques Bus - DigiTrust.U; Jan Schallaböck - Data Protection Agency, Schleswig Holstein, appearing Pro Bono; Aaron Martin - London School of Economics & Political Science)
    i. *Legal barriers to INDI Services / user-centric IdM*
    ii. *Governance of the INDI ecosystem / personalized identity ecosystem*
    iii. *Role of the law in facilitating trust in the information society*
h. Open discussion needs for (or lack thereof): policy initiatives; regulatory intervention; bottom-up self-governance; hybrid approach.

3. Panel II - Business Hearing: Towards Viable Business Models in Identity Management within the INDI Ecosystem

d. Introduction to the INDI ecosystem topology and Operator models (Lefteris Leontaridis - IKED/GINI; Pasi Lindholm - NorthID /GINI)
e. Comments by panellists, representing industry and user perspectives (Olli Jussila – TeliaSonera; Takis Damaskopoulos –Open Innovation Strategy and Policy Group; Patrick Curry - British Business Federation Authority - BBFA; Steven Adler – IBM)
    i. *The Operator Model from the side of current providers of IDM services*
    ii. *The Operator Model from the side of possible new entrants*
    iii. *The telco view on Operator models*
    iv. *The banking view on Operator models*
    v. *The end-user view on Operator models*
f. Open discussion, what is required for a business model to work out in practice: Viable business models in sight? How facilitate their emergence?

4. Conclusions from the two hearings and next steps

CONFERENCE DOCUMENTATION

All conference documentation, including programme, presentations and slides, speakers' profiles, participant's testimonials, and related information on the Global Forum 2011 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.

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ADSL	Asymmetric Digital Subscriber Line
BTS	Base Transceiver Station
B20	B20 Business Summit
CATV	Cable TV
Capex	Capital expenditures
CD	Compact Disc
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIP	Competitiveness and Innovation Framework Programme
DBN	Data Breach Notification
DG	Directorate General
DG Infso	Directorate General Information Society and Media
DG SANCO	Directorate-General for Health and Consumers
DNA	Deoxyribonucleic Acid
DOJ	U.S. Department of Justice
DSL	Digital Subscriber Line
DVD	Digital Versatile Disc / Digital Video Disc
EC	European Commission
ECG	Electrocardiogram
EESSI	Electronic Exchange of Social Security Information
eG8	E-G8 Forum
EHIC	European Health Insurance Cards
eID	electronic Identity
EMR	Electronic Medical Record
EPR	Electronic Patient Record
EU	European Union
EUR	Euro
EV	Electronvolt
FCC	US Federal Communications Commission
FDD	Frequency Division Duplexing
FP7	Framework Programme 7
FTC	Federal Trade Commission
FTTH	Fibre-to-the-home
GB	Gigabyte
GBP	British Pound
Gbps	Gigabyte per second
GCC	Gulf Cooperation Council
GCD	Global Cities Dialogue
GDP	Gross Domestic Product
GHz	GigaHertz
GNP	Gross National Product
GP	General Practitioner
GPS	Global Positioning System
gTLD	Generic Top Level Domain
G2G	Government to Government
G20	Group of Twenty Finance Ministers and Central Bank Governors

HD	High Definition
HDTV	High Definition TV
HGV	Heavy Goods Vehicle
HLN	High Leverage Networks
IC	Information and Communication
ICC	Interstate Commerce Commission
ICT	Information and Communication Technologies
ICT PSP	ICT Policy Support Programme
IGF	Internet Governance Forum
IMI	Internal Market Information System
IP	Internet Protocol
IPR	Intellectual Property Rights
Ipv4	Internet Protocol version 4
Ipv6	Internet Protocol version 6
ISP	Internet Service Provider
IT	Information Technologies
ITU	International Telecommunication Union
k	Kilo
LTE	Long Term Evolution
LLU	Local Loop Unbundling
Mbps	Megabits per second
Mbit/s	Megabits per second
MEPA	Public Administration Electronic Marketplace
MHz	Mega Hertz
MIIT	Chinese Ministry of Industry and Information Technology
MIT	Massachusetts Institute of Technology
MPAA	Motion Picture Association of America
M2M	Machine-to-Machine
NCP	National Contact Point
NGA	Next Generation Access
NGN	Next Generation Network
NGO	Non-governmental Organization
NIST	National Institute of Standards and Technology
OS	Operating System
OTT	Over-the-top
Opex	Operational expenditure
OSOR	Open Source Observatory and Repository
PAN	Private Area Network
PC	Personal Computer
PCS	Public Connectivity System
PEPPOL	Pan-European Public Procurement Online
PIPA	Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act
PPP	Public Private Partnership
PR	Public Relations
PRC	People's Republic of China
PROTECT IP Act	Preventing Real Online Threats to Economic Creativity and Theft of Intellectual Property Act
Q&A	Questions and Answers
QoE	Quality of Experience
QoS	Quality of Service

RAN	Radio Access Network
R&D	Research and Development
R&D&I	Research, Development and Innovation
RFID	Radio Frequency Identification
RIAA	Recording Industry Association of America
ROI	Return of Investment
RTD	Research and Technological Development
SaaS	Software as a Service
SME	Small and Medium-sized Enterprises
SMS	Short Message Service
SNS	Social Networking Service
SOPA	Stop Online Privacy Act
Tbps	Terabyte per second
TIA	Telecommunications Industry Association
TLD	Top Level Domain
TV	Television
UK	United Kingdom
UMTS	Universal Mobile Telecommunications System
UN	United Nations
US	United States
USA	United States of America
USD	US Dollar
WHO	World Health Organization
WiFi/ Wi-Fi	Wireless Fidelity
WiMAX	Worldwide Interoperability for Microwave Access
WTO	World Trade Organization
WWW	World Wide Web
W3C	World Wide Web Consortium
VoIP	Voice over Internet Protocol
ZB	Zettabytes
3D	Three Dimensional
2G	Second Generation
3G	Third Generation
3G+	Third Generation evolved
4G	Fourth Generation

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