GLOBAL FORUM

Shaping the Future

2006

GOOD PRACTICE EVENT 2005

DIGITAL CONVERGENCE

Towards a more Competitive, Mobile and Inclusive Knowledge-based Information Society

Conference Proceedings

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ACKNOWLEDGEMENTS

I am pleased to make these proceedings available and to have the occasion to address a few words of thanks.

The Global Forum 2006 on 9 & 10 November in Paris brought together the expertise of more than 300 high-profile representatives from across political, business, and academic institutions and represented more than 30 countries. Having done our very best to create a warm and enjoyable atmosphere during the Forum for people to get and to work together, I sincerely hope that the Global Forum 2006 will result in new partnerships, collaborations and other valuable contacts being established.

An event of this scope does not just happen. It took an entire year's effort by a great number of people with a great amount of skill and expertise. It also requires an enormous commitment of the people involved and I would like to take the occasion to express my appreciation for the excellent work done by the team of the City of Paris. They have given their very best and did an outstanding job.

The 15th Global Forum was organised in cooperation with City of Paris and with the special support from a number of companies and organizations recognizing the importance of such an event. Without their help, this conference would not have been possible and I would like to express my sincere thanks to the main sponsors of the Global Forum 2006, which are

Oracle, Caisse des Dépôts, Consip, Qualcomm, Latham & Watkins, IBM, Telecom Italia, AT&T, Postelink, Verizon, White & Case, La Poste, Sun, NAB Broadcasters, Proxim Wireless, Noos Numericable, Pulvermedia, TDF, Afilias, SES Global, idDOON, CNES, Voxonic, Jönköping University, and ETSI

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Finally, I would like to express my sincere thanks and a heartfelt *merci* to the moderators, chairs and speakers for having shared with us their experience and knowledge, and their ideas and great enthusiasm in creating a more competitive, mobile and inclusive knowledge-based Information Society.

I am counting on all of you as global partners and friends to carry on the vision of the Global Forum to shape the future together and look forward to seeing all of you next year at the Global Forum 2007.

Sylviane Torpokoff
President of the Global Forum

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PROGRAMME

9 November 2006

WELCOME ADDRESSES

Senator Pierre Laffitte, President of the French Foundation Sophia-Antipolis, Alpes-Maritimes, France
Sylviane Toporkoff, President of the Global Forum, ITEMS International, France
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Moderator Part 1 "General Experiences": **Patrick Dunaud**, Partner & Chair of the Litigation Department, Latham & Watkins

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Jane E. Mago, Senior Vice President & General Councel, NAB (National Association of Broadcasters), USA
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Aviva Silver, Head of Unit of the MEDIA Programme and Media Literacy, Directorate A: Audiovisual, Media, Internet, European Commission
The Media 2007 Programme of the European Commission
Mario Taddei, Technical Director, **& Massimiliano Lisa**, CEO, Leonardo3 Srl, Italy
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William Sloan Coats, Intellectual Property Partner, White & Case LLP, USA
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Giancarlo Del Bufalo, Head of Department for General Administration, Staff and Treasury Services, Ministry of Economy and Finance, Italy
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Jean Séverin Lair, Deputy Head of Unit for the Development of electronic Administration, Ministry of Economics and Finance, France
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Luc Smet, Advisor- General, Federal Public Service Home affairs, General Directory Institutions & Population, Belgium
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Julia A. Glidden, International Advisor, International Centre of Excellence in Local eDemocracy (ICELE), UK
The International Centre of Excellence in Local eDemocracy
John G. Jung, Chairman, ICF Intelligent Community Forum, USA
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Bruno Salgues, Professor of Marketing, Design & Strategy, National Institute of Telecommunications INT, France
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ABOUT THE GLOBAL FORUM

The "Global Forum on Shaping the Future" is an annual, independent international event dedicated to business and policy issues affecting the successful evolution of the Information Society. As a high-profile international think tank, bringing together senior government officials, policymakers and industry leaders from Europe, North 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 and the Foundation Sophia-Antipolis. It is sponsored by organisations from all over the world, interested in sharing and influencing global IT-agendas, and enabling business and government leaders from all sectors of the ICT communities to meet and work with suppliers and service providers.

THE GLOBAL ROADMAP

2006 The Digital Convergence – Paris, France

2005 The Broad Convergence – Act II – Brussels, Belgium

2004 The Broad Convergence – Malmö, Sweden

2003 Connecting Businesses & Communities – Rome, Italy

2002 The Promise of Broadband Services – Washington DC, USA

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

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

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

1998 Networked communities – French Senate, Paris, France

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

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

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

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

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

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

THINK TANK SYNTHESIS REPORT

The Global Forum 2006 took place on 9 & 10 November in the historical City Hall of Paris, France. During these two days more than 300 high-profile representatives from across political, business, and academic institutions from around the world came together in order to exchange their experience and discuss a series of fundamental questions related to the topic of this year's Global Forum: The Digital Convergence – Towards a more competitive, mobile and inclusive knowledge-based society.

The Forum was organised in 4 plenary and 7 panel sessions of which two always ran in parallel.

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

The Global Forum's report is structured according to the actual sequence of presentations during the 2 conference days. The abstracts of the presentations made during the Global Forum 2006 are listed in chronological order corresponding to their succession in the final conference programme, as listed in the beginning of the present document.

Senator Pierre Laffitte, President and Founder of the French Foundation Sophia-Antipolis, welcomed the participants of the Global Forum 2006. The 15th Global Forum / Shaping the future event is a very important one – not only with regard to its high-level panellists and participants but also with regard to what is currently happening in the world. Let us take, for instance, the climatic change. ICT is becoming more and more important in the field of climate analyses and climate mapping. Today, ICT systems influence every aspect of our everyday life.

Sylviane Torpokoff, President of the Global Forum, welcomed the participants and opened the 15th edition of the Global Forum / Shaping the future think tank which convened for the very first time in Paris. As Victor Hugo said, "To breathe the air of Paris preserves the soul."

A special thank you was given to the City of Paris for hosting the Global Forum and to the sponsors of the Global Forum 2006 - not only for having made this event possible with their valuable support but also for bringing with them the spirit of partnership and co-operation that continues to make the Global Forum a unique networking event.

Digital convergence is finally happening and a real ”hot” topic. Session 1 is dedicated to trends, developments and policies in the context of ubiquitous infrastructure which has emerged as one of the most crucial issues for digital convergence. Session 2 is dedicated to the analysis of content issues in a convergent environment. Session 3 includes a wide and diverse representation of some of the leading international experts in the varying and evolving ways that governments and the private sector are dealing with public policy, legal and regulatory issues flowing from the increasing convergence of voice, data and video services, as well as the increasing globalisation of the Internet. Session 4 explores security and privacy challenges and solutions with regard to data surveillance and data governance, intellectual property and digital rights management, the Web 2.0 and RFID, cybercrime and wiretapping, semantic risks and the need for data governance education. Session 5 provides a snapshot of the transformation of the public sector fostering better governance, effective management of resources, inclusive government, efficient public services and citizen-centred government. Session 6 explores the today’s challenges for innovation and R&D - while Session 7 focuses on the improvement of the economic environment and daily e-Services. Session 8 presents recent developments, challenges and barriers in the field of e-Health.

Anne Hidalgo, First Deputy Mayor, City of Paris, France, welcomed the attendees. Since 15 years, the Global Forum brings together decision makers of the public and private sector from across the world and it is a great pleasure for the City of Paris to host the Global Forum 2006. The topic of this year’s Forum “The Digital Convergence - Towards a more competitive, mobile and inclusive knowledge-based society” corresponds precisely to the strategic orientation of the City of Paris as regards the deployment of ICT.

In fact, on 4 June this year the Mayor of Paris, Bertrand Delanoë, presented the content of the “Paris, the Digital City” programme to the public. This programme will accompany the digital revolution that deeply transforms the life of every citizen in various areas, such as information, production, commerce but also entertainment.

The programme “Paris, the Digital City” is build around three axes. The first one concerns the development of very high speed networks in the city. 80% of Paris’ buildings will be connected with fibre optics. A number of actions is planned in this regard: i) Making available the use of municipal equipments, in particular the sewer and water distribution systems of the city. ii) A considerable reduction of access costs through a reduction of the fees for the operators. iii) The creation of a “smart building” label for municipal equipments. iv) Inciting telecom operators to share the networks installed. v) Provision of Internet connection to social housing (200 000 housings concerned); and vi) the creation of a supervisory body to ensure the further development of high-speed broadband and services in Paris.

The second axis focuses on the development of wireless technologies, such as the provision of free WiFi access in 400 public spaces and municipal buildings (e.g., the city halls of the 20 administrative districts, associations, libraries, public parks and gardens …). The most innovative initiative in this context is the creation of a new kind of “urban WiFi furniture”. Initiatives have been set up to allow companies in the north-eastern part of the city to test new mobile usages. Moreover, free WiFi will be provided to the inhabitants, tourists, commercials, and companies of the 2nd Arrondissement (one of the 20 city districts of Paris), and the extension of the mobile coverage to municipal buildings is currently in process.

The third axis concerns the provision of Internet access to the city’s inhabitants. In this context several public access points, so-called Digital Public Spaces, have been created and further will follow. Furthermore, each year, 6,000 recycled and refurbished computers are offered free of charge to Parisians. And finally, the City of Paris helps its citizens to create their own web site “.fr”.

The programme “Paris, the Digital City” represents a powerful initiative that accompanies actions of other actors, e.g. actors from the private sector but also initiatives of the French Government or the region Ile-de-France. It also shows the city’s strong commitment to ICT and the city gives its best attention to the presentations that will be held during the two days of the Global Forum. With this concluding remarks the Deputy Mayor of Paris welcomed once again the participants in Paris and to the Global Forum 2006.

As the first speaker of the Opening Session **Frans de Bruïne, Director, "ICT for Citizens and Businesses", DG Information Society and Media, European Commission,** [http://europa.eu.int/information_society/index_en.htm], outlined very clearly

The EC Information Society Policies Today and in the Years to Come

The framework document of the EU Information Society policy i2010 will be launched in the middle of next year. i2010 is based on three pillars: i) Creating the European information space and getting the regulatory framework right; ii) addressing the challenge of how to do more and better research in the domain of ICT; iii) addressing a number of societal challenges, like inclusion, public services and quality of life.

The regulatory framework discussions are starting and the Commission is currently preparing its proposals. The keyword in this context is "competition". Competition will drive the renewal and the communications framework. As regards R&D, there is the 7th Framework Programme that will probably decided by the end of this year. For ICT it will mean an increase of 35% as compared with the FP6. This may not be enough, but it is not possible to do everything at a European level and there is a real challenge for the Member States to make a similar effort in increasing their research efforts. Concerning the aspect of inclusion, there has been a ministerial conference in Riga in June this year where the framework has been defined. Moreover, the e-Government Action Plan has been launched to transform the public sector. It is important to stimulate the Member States, because the competence of the Commission in these domains is very limited – both in terms of legislative power and budget.

As regards public services, the focus is on more efficient public services and connectivity. 45% of the GDP in Europe is spent in the public sector. Efficient public services are a key element for competitiveness – and this is not only a matter of cost cutting, but also of quality. High quality public institutions are very important for innovation. Those countries with high quality public institutions score a lot higher on the innovation charts than those countries who do not have such institutions. The specific European challenge in the context of public services is interoperability. Citizens increasingly move and want to be sure that their social services follow them across borders. Thus, it is important to assure that citizens moving from one country to another can still access the services.

Healthcare is another major challenge: 9% of the GDP in Europe is spent on healthcare (compared to 40% in the U.S.). In Europe, the healthcare spending is expected to double in the coming 15 years. At the same time, patients are becoming more demanding and increasingly mobile. The Commission recently launched a consultation on what should be done to ensure legal certainty for patients who move. ICT can do a lot to improve efficiency of the healthcare sector. It can also improve the access to healthcare in remote regions and contribute to improve quality and safety. In the U.S., twice as many people die from medical errors than from road accidents. 80% of these errors are linked to breakdowns in the communication chain or wrong medication. Europe has a strong health industry: 3 out of the 4 top health industries are European. Here is an area where one can combine societal challenges with an industrial base.

Regarding inclusiveness, 30-40% of the European population does not yet actively participate in the Information Society. There is a combination of a challenge for Europe and for the private sector. Europe has limited competences but can bring Member States together and set examples of pilots.

Generally speaking, the policies for the Information Society are in place. The first and the second pillar are well on the way and in the coming years the focus will shift towards the third pillar addressing societal challenges with the help of ICT. The real challenge there is to create win-win situations. It is important to use ICT not only to improve administrations or the healthcare system, but also to build on Europe's knowledge and industrial base. Challenges are not unique and therefore there is a real chance for Europe.

The following **Q&A** of the presentation referred to the question whether private companies are rather interested in e-Inclusion or rather reluctant due to the cost involved. Frans de Bruïne emphasized that technological development and convergence make it much easier to design accessible products, e.g. products that are also accessible for elderly people. Many problems related to accessibility can be addressed with a little bit of effort and a little bit of creativity. However, as the conference in Riga had shown, there is a lot more interest from the U.S. industry than from the EU industry.

Dr Ying-jeou Ma, Mayor of Taipei, Taiwan, gave a captivating presentation on

Making Taipei a Cybercity

Even if the main reason for making Taipei the largest WiFi-city in the world was to increase the city's competitiveness, there is another reason: In 1999, Asia Week carried out a survey of 40 Asian cities on their quality of life. Taipei was ranked on the second place. However, when looking at the indicators, Taipei was ranked number 1 in terms of educational spending per capita but number 34 regarding the number of motor vehicles per kilometre of city road. With a total area of 272 square kilometres and a population of 2.62 million, the city has an average population density of 9,700 people per square kilometre.

As it is not possible to build more roads, the idea was to replace the limited geographical space with cyberspace. This was why the Taipei City Government launched the CyberCity-initative in 1999. The idea was to motivate citizens to frequent the Net and thus to free up the roads. People should use the Internet to conduct municipal transactions with the government instead of going to the municipal offices. Taipei's CyberCity-initative is divided into two phases: The first phase covered the years 1999-2002, the second phase covers the period of time 2003-2006. The objective of the first phase was to create an e(lectronic)-City; the objective of current second phase is to create a m(obile)-City.

During the first phase, a solid infrastructure – the Metropolitan Area Network (MAN) – has been build up and a powerful e-Government system has been put in place. Today, 88% of all paper works are handled through Taipei's e-document system. 400,000-500,000 documents are transacted electronically every day, saving about 1 million sheets of paper per year.

Furthermore, each classroom, i.e. 11,000 classrooms in the city, has been equipped with at least one computer. The city also provides free of charge life-long email accounts as well as 3 hours free IT-training courses to the citizens. Up to now, 280,000 citizens applied for the free email account. The City Government mobilised various governmental but also private companies' resources to make Taipei a CyberCity.

In 2002, the second phase started with the aim to make Taipei a mobile city. Special contracts initiated the private sector to invest more than 30 million USD in building a wireless city. They used public facilities, such as streets etc., to deploy the access points. Within 3 years more than 4,000 access points have been set up covering more than 90% of Taipei's population. In June this year, Taipei's wireless network has been certified as being the largest in the world.

Such dense wireless coverage enabled some very specific applications improving the life of Taipei's citizens, such as the "easy card". The easy card is an innovative, multi-functional, value-added card which can be used to pay the subway, bus and taxi fares, public parking fees, or check-out fees at self-service libraries. It also includes another application: Once elementary pupils pass the school gate, the card activates a device sending a SMS to the parents' mobile phone in order to inform them that the kid has safely arrived at school.

Making a city a mobile city can serve many purposes. Taipei's objective was to make the city more intelligent and competitive – and thus to attract investment and foster economic growth and welfare in the city.

André Santini, Former Minister, Mayor of Issy-les-Moulineaux and President of the Global Cities Dialogue, France, provided a very interesting insight into ways of

Putting Convergence in Service of the Citizens

Convergence is a reality and people use their computer screen just as for watching TV as for surfing the Internet. However, there are a great number of other possible applications, for instance in the field of security or energy management.

Following the examples of "ubiquitous cities" that are currently developing in Korea and Japan, the City of Issy-les-Moulineaux is transforming an old Vauban fortress into a new high tech residential area offering the highest connection speeds and omnipresent technology supporting various personalized services to facilitate the daily life of its inhabitants.

Since October this year, Issy's city district "Val de Seine" - a city quarter where the main international and ICT companies are concentrated - is entirely covered by a WiFi network based on "WiFi mesh" technology. It is thus possible to connect to the Internet at any bus station, the patio of a restaurant, a park bench or any other place outside without bothering to find the next WiFi hot spot. Mesh networks have already been deployed in other cities, such as Taipei, Philadelphia, San Francisco or Amsterdam, but Issy created the first mesh network in France.

However, the notion of convergence describes more than just a technological phenomenon. It is also an attitude and a global vision that should urge decision makers to reflect on – and to slightly anticipate – the needs expressed by their fellow citizens. Being convinced that people will look for multimedia content once the bandwidths is available, the City of Issy-les-Moulineaux launched the first Web TV in France, Issy TV, seven years ago and thus anticipated the emergence of broadband. Today, thousands of Issy's inhabitants regularly watch Issy TV as their local information channel. The same happened regarding Issy's Interactive City Council: Today, when the notion of "participative democracy" is at the core of the debates on the upcoming French presidential election, Issy is already realising participative democracy since 10 years! By broadcasting the meetings of its City Council on

the Internet and cable, Issy has succeeded in considerably increasing the number of citizens interested in municipal debates. By going to the people and giving them the possibility to ask questions, Issy gave a real sense at the notion of participative democracy.

In this same spirit, Issy is currently experimenting Mobile TV. Since May 2006, subscribers of Orange 3G can watch Issy TV on their mobile phones. This trial, realised in co-operation with France Telecom, allows the city to test this technology in order to be ready once there is a critical mass of users.

Nonetheless, in the digital society of tomorrow, there are several challenges to cope with: One of them is fighting the digital divide that exists between the northern and southern hemisphere but also within cities. But also environmental protection – especially in view of the fact that producing one computer requires 22 kg of chemical products and 1 t of water. The more our world becomes connected, the more the environment is threatened. Sensitising citizens on that matter is essential and Issy is starting doing this. Given that computers are part of the daily life of ¾ of Issy's households, recycling of computer equipment became a major challenge for environmental protection.

In co-operation with HP France, based in Issy, a campaign to collect used computer equipment was launched all over the city. This initiative was then expanded to Issy's neighbouring cities in the community Arc de Seine (162,000 inhabitants). Even if most of the collected material will go directly to recycling centres, those computer that can be repaired, will be refurbished by a company working on the reintegration of disabled persons in the labour market. Once refurbished, the computers are provided to disadvantaged persons at a very low price (about 5x cheaper than the price of a new computer). With this initiative, the City of Issy-les-Moulineaux aims at fostering environmental protection while at the same time supporting the reintegration of disabled persons in the labour market and fighting the digital divide by providing low cost computer material to disadvantaged persons.

Edith Cresson, Former Prime Minister, President "Fondation Ecole de la Deuxième Chance", France, shared her vision of the

Implications of Convergence

Today, convergence is a reality. It is characterized by a multitude of products and services combining Internet, television, and mobile devices. This evolution will not be without consequences and two of them constitute a particular challenge for France as well as for Europe.

The first implication of convergence is its impact on the audiovisual and the film industry. The image is at the core of all these new services proposed via fixed and mobile communication networks. Thus, new economic models emerge and will most likely revolutionise the creative sector.

A first model emerged with the appearance of telecommunications operators in the value chain. While their traditional markets slow down, telcos enter the TV market. It is important to keep in mind that telecommunications operators are in generally 10 times larger than other actors of the audiovisual sector. A second model appeared in the world of informatics with Apple and Microsoft as its best known representatives. Others count on free content covered by advertising revenues.

Both models suggest that the European audiovisual sector will undergo important changes in the coming years. Will there still be enough place for creators to develop? Will creation in Europe be determined by the logics of the market?

The second implication of convergence is the increasing importance of software. Europe does have too few software companies. Software is at the core of creating added value – whether in the sector of R&D, service development, defence, aeronautics, or automotive.

Several studies show that Asia is becoming a more and more important actor in the world of software development. The world population of software developers is expected to double until 2010. Up to now, Europe and North America pooled most of the software developers. However, this is no longer valid: In 2007, the Asia-Pacific region will have more software developers than Europe. China, that already succeeded in becoming a major hardware developer, launched a programme for the development of software parks.

If Europe really wants to become an independent economic pole, it has to provide a real alternative in terms of developing hard- and software solutions that is independent from U.S. products and actors. However, given the fact that the software economy is far from being stable, Europe might get its chance to become a more important player in this specific domain. The world of informatics regularly undergoes important changes that redistribute the roles between the software companies and lead to the emergence of new players. Open source represents a new model in the software economy and might also represent an opportunity for Europe.

Commissioner J. Thomas Rosch, Federal Trade Commission - FTC, USA, gave a very distinguished and wise talk on

Competition Choke Points?

Competition regulators on both sides of the Atlantic have long heard complaints that a single firm's control of an "essential" facility gives that firm an unfair advantage in other markets. "Essential facilities" is used here as a term of art to refer to facilities that have achieved a degree of popularity – or, ubiquity – that makes them hard to do without. They are "pipes" that deliver content from suppliers to consumers. In analysing whether facilities are "essential" in this sense, one should be aware of competition between "platforms." A facility that does not face competition, however, may confer unique power over output, price and quality upon its owner – power that may extend to related and adjacent markets. To the extent the owner of such a facility engages in inefficient competitive conduct that harms consumer welfare, a substantial antitrust issue may present itself.

Sometimes such a facility results from innovation, which would not have occurred without the promise – or at least the prospect – that the innovator would enjoy the power for a period of time. Under those circumstances, the power is consistent with consumer welfare. Yet the power can be acquired illegitimately. In the U.S., patents may confer enduring monopoly power in certain markets. If the power stems, in whole or in part, from a standard, it may result from deception or unfairness in the standard-setting process. If the power stems from an acquisition, it may result from a material reduction in the competition that would otherwise exist in the marketplace. Sometimes the dynamics of a particular market are such that it will tip to a market "standard." Governments may also play a role in the formation of an essential facility. In some cases the government may have established a monopoly in a particular market only to later transfer ownership to the private sector.

However, even if the power of an essential facility has not been created illicitly, it can still be exercised in a fashion that harms consumer welfare. Some law enforcement authorities – and courts – have considered numerous kinds of conduct by essential facilities as being inimical to consumer welfare. These have included refusals to deal with rivals, de facto and de jure exclusive dealing contracts, tying and bundling, and discriminatory practices.

Whether the conduct at issue is really suspect is often hard to determine. For example, "technological tying" where manufacturers add features to a product that make it more attractive but that makes obsolete or otherwise non-competitive the products produced by rivals who produce those features on a stand-alone basis. Indeed, evaluation of the effects of more orthodox mergers and acquisitions is frequently difficult. For one thing, as the *Oracle* case demonstrated, it may be hard to define relevant product or geographic markets in which the transaction is occurring, and hence to determine whether it is likely to result in the power to exploit consumers. For another thing, even if the transaction or conduct at issue may produce power in the short term, the potential for new entry may make the power fleeting. Whether the conduct is to be condemned or not depends on the context in which it occurs.

Countermeasures must also be considered. If and to the extent that rivals can combat exclusive dealing contracts, tying or bundling by their own price terms or by marrying others who will enable them to offer the same bundles on competitive terms, it cannot be said that the conduct is really harmful to consumer welfare. To the contrary, the conduct in that context may actually stimulate competition that might not otherwise occur and thereby contribute to consumer welfare. Another factor that must be considered is the consequence of law enforcement action. In a nutshell it should not deter innovation or efficiency. A great debate is raging right now about what standard should be used in evaluating the conduct of essential facilities (if any standard is appropriate for all conduct.)

In some instances, it simply cannot be said that the creation of this power is consistent with consumer welfare. Antitrust and competition authorities around the world have the tools – and responsibility – to prevent the creation of power or to dissipate it if it has already been created. In the U.S., our tools are the Sherman and Clayton Acts. In the EU, they are Articles 81 and 82 of the Treaty of Rome. It is important to get things right. On the one hand, there is no question that we should challenge the creation or exercise of power by essential facilities that is truly detrimental to consumer welfare. On the other hand, however, we must not stifle the innovation, skill, industry or foresight that frequently account for the power or chill efficient conduct by those who have won it.

The following **Q&A** of the presentation referred to the question whether technology moves so fast that the debate on competition becomes too difficult? Commissioner J. Thomas Rosch stressed that it is certainly making it difficult: Several years ago we had nothing but the telephone lines into our house, then we got the cable lines and today we are able to buy our satellite TV DSL through our cable provider or to get our Internet DSL capabilities through our cable provider - and yet there are lot of alternatives to provide those same kinds of capabilities. However, over time, and particularly as we become more global, the forces of competition are going to make the job of law enforcement agencies a lot easer.

Juan Rada, Senior Vice President, Public Sector & Education Global Business Unit, ORACLE CORPORATION, [www.oracle.com], presented with great know-how and insight a particularly innovating approach on

Delivering the Next Generation of Public Services

The take-up of e-Government services has been slow, so a new approach is needed if public services are to take best advantage of ICT. This has led to a change from the initial views of e-Gov to t-Gov: Transformational Government enabled by ICT.

As regarding the take-up of e-Government in European countries, one can notice that Iceland, the Nordic and the Scandinavian countries have made significant progress. One interesting indicator in the context of analysing e-Government take-up rates is how many cross-transactions between the citizens and public authorities take place (e.g. in terms of sending filled forms). These numbers are relatively low in the different countries of the EU. However, things change a bit when looking on enterprises: The percentage of enterprises which use the Internet for interaction with public authorities is a lot higher, in particularly due to electronic procurement procedures.

The i2010 priorities in the EU are: i) Advancing inclusion through e-Government so that by 2010 all citizens benefit from trusted, innovative services and easy access for all. ii) Significantly contributing to high user satisfaction, transparency and accountability, a lighter administrative burden and efficiency gains in order to make efficiency and effectiveness a reality. iii) Implementing high-impact key services for citizens and businesses - by 2010, 100% of public procurement will be available electronically. iv) Putting key enablers in place - enabling citizens and businesses to benefit from convenient, secure and Interoperable authenticated access across Europe to public services. v) Strengthening participation and democratic decision-making – demonstrating tools for effective public debate and participation in democratic decision-making.

The objectives of i2010 with regard to t-Government in the EU are: A Single European Information Space offering affordable and secure high bandwidth communications, rich and diverse content and digital services. World class performance in research and innovation in ICT by closing the gap with Europe's leading competitors. An Information Society that is inclusive, provides high quality public services and promotes quality of life.

t-Government in the UK focuses on three key transformations: Design services around the citizen and business, move to a shared services culture, and professionalism in planning, delivery, management, skills and governance. Sharing services is an essential means to shift costs from the back-office to the front-office: About 80% of the costs of the ICT systems in government are costs related to maintaining existing systems. The notion of shared services basically means to share the infrastructure, but being autonomous to develop own services.

Corresponding to a survey of the Oxford Internet Institute, the top 10 barriers to t-Government are: A poor co-ordination across central, regional and local levels of government. The resistance to change by government officials. The lack of interoperability between IT systems. Low levels of Internet use among certain groups. The lack of political support and a lack of European standards for electronic identification. Differences in

administrative traditions and processes across the EU. A lack of trust due to a lack of electronic identification and authentication. ICT skills among government officials and public concerns about online theft and fraud.

In order to implement t-Government, the UK implementation plan is closely linked to budgets and recognises the importance of leadership and governance. It builds on the key transformations and foresees an annual reporting cycle.

The question raised during the **Q&A** part of the presentation was if the top 10 barriers of t-Government concern only the EU or the entire world. Juan Rada explained that these barriers can be probably found all over the world. Though, developing countries, such as South American or some Asian countries have less legacy and start from a scratch. In this respect these countries will have less problems in implementing t-Government. As regards the U.S:, the U.S. is highly fragmented because the interaction with the citizen takes place at the state level – which is extremely heterogeneous. However, it is a mistake to believe that a state with many high-tech and ICT companies, such as California, have implemented efficient e-Government systems. In fact, the U.S. has enormous difficulties to do social engineering, which is a prerequisite for doing e-Government.

Prof Jens C. Arnbak, Delft University of Technology, The Netherlands, provided a visionary and brilliant insight in

Mobile Broadcasting – Options for Europe

Europe's 3G frequency plan (UMTS) includes unpaired 5 MHz-channels for (broad- en multi-casting to) mobile terminals. The EU has yet to agree and adopt a convincing common strategy for this. Member states and neighbours of the EU have not yet agreed on joint technology standards for mobile broadcasting and/or multicasting via these unpaired channels.

This has led to discussions about what should next generation infrastructure be in telecommunications. British Telecom's next generation network structure is expected to be implemented in 2008. It is a sort of mapping from the right to the left moving from 20 central sites to 86 sites and eventually to 4,400 sites to serve all UK citizens. This is very different from mobile broadcasting!

In contrast to telecommunications, the problem in mobile broadcasting is that there is no common set of standards. Many mobile options are currently considered in the EU but there is no final standard yet. GSM vendors favour Digital Video Broadcast (DVB), which would be modified for low-power handheld terminals to DVB-H. TDtv is another prospective solution for mobile operators using the TD-CDMA features of the 3GPP standard in the unpaired and often unused UMTS channels at 5 MHz for multimedia broad- and multicast services (MBMS). That can deliver up to 50 channels for standard cell phones, or 15 QVGA channels for higher-quality cell phones. Other operators tare looking for finding and expanding international "zones" in the UHF-band and L-band to reap a sort of common digital dividend. There are very few European wide efforts to agree upon how this common digital dividend should be realised and when looking at the European map, one can see a rather patchwork.

MediaFLO is an impressive US outsider, offering multicasting with shorter channel selection time to assist "zapping" between digital channels. MediaFLO is designed for markets with dedicated spectrum, such as in UMTS, and high power, reducing the number of antenna

sites to cover a region. MediaFLO uses advanced coding schemes. Field trials are planned in some regions of Europe.

All those who are in mobile broadcasting should look and discuss together what the best solution could be. Otherwise operators in Europe, with all its different borderlines, will be confronted to regions that are difficult to serve due to different standards on either sides of the border as well as to the problem of how to serve thinly populated areas: Operators will either have to have large transmitters to cover big areas or a very finely patched network of low level and small antennas.

The emerging patchwork of different mobile multi- and broadcasting systems in EU is risky and sub-optimal, *if* it reduces or annihilates the "digital dividend" of flexible solutions for serving Europe's highly pluralistic culture, or *if* national choices were to result in "standardised" patchworks or technologies based on incongruent regional interests across Europe. The EU should become more conscious of its need to maximize the "digital dividend" by careful and judicious choices of common open technology standards.

Gabrielle Gauthey, Member of Board, ARCEP, France, provided a remarkable insight in

Electronic Communications Regulation in France

Competition pushed through regulation can foster investment. This has proved to be true in France during the past years: Fixed investment has increased by 17% between 2005 and 2006; 40% through competitors of France Telecom. But also in the broadband sector where France has a very competitive market with sound national competitors and a very competitive incumbent. French residents can enjoy innovative triple play offers at some of the lowest prices in the world. (30 Euro is the average price for up to 20 MB Broadband Internet, VoIP and a package of TV channels). Recently, the French national champions have announced NGN investment. Today, France, that was lagging behind for several years, is above the average broadband penetration. France has almost the same broadband penetration as the U.S., but with much lower prices.

What have been the regulatory measures to achieve this? France has implemented the EU Regulatory Framework and used an adequate combination of both remedies that were bitstream and local loop unbundling. One of the goals was to foster geographical investments and this objective has been reached, not least with the support of local communities. Local communities have started to be active developers of the digital landscape by unrolling dark fibre networks to support broadband extension. However, there is still a geographical gab between the unbundled areas and the non-unbundled areas. While 96% of the population has broadband, only 55% of the population is able to enjoy the triple play offers.

As regards VoIP, France ranks 3rd worldwide, just behind the USA and Japan in terms of VoIP subscribers. 17% of the fixed line traffic runs over broadband today. The increase of competition pressure on retail markets in particular due to the increase of VoB telephony is leading towards a total deregulation of the retail fixed telephony markets by September 2008.

Regarding NGNs (Next Generation Networks), Fibre is a real technological cut off. There is no doubt that fibre will be probably the fixed line of the future. France is a one platform country, in opposition to countries having cable, and copper line is the only real fixed access in France. Cable is responsible for only 5% of the broadband penetration, which is still very low.

There is a big debate about regulatory holiday that would foster investment. This is a risk in one platform countries like France, but it is also an issue because fibre is very expensive and there is the question about the right economic equitation. 80% of the cost is civil works, “silly” dark fibre and civil engineering, and the intelligent (the active) part is the rest. This utilisable infrastructure has to be shared between the operators.

Another point is the uncertainty between additional incomes. There is a need to reach a better balance of partnerships and there is no reason why the telecom operators should not participate in the financing of the content. VoD is developing very fast due to these new platforms that must be seen as a new opportunity to expose new content. There is also a need to think about the right investment model and local communities are key in this issue.

The fixed-mobile convergence is starting in France. This raises new regulatory questions especially regarding the two bottlenecks, which are the frequencies and access to the local loops. Regarding spectrum, which is one of the most important questions for convergence, the EU proposal is to go follow the U.S. example and to move towards technology neutrality. France is in favour of technology neutrality, but it is necessary to take into account at the same time interferences and interoperability issues, European harmonisation’s needs (like for GSM or UMTS), and efficient allocation of a scarce resource.

To conclude, market analysis in France is well in place moving towards deregulation of some of the markets with concentration on remaining bottlenecks and on wholesale markets. The new challenges are fixed-mobile convergence, the NGN roll-out, and especially NGN access. The review of the EU Regulatory Framework launched this year needs to address questions such as Which tools are necessary to monitor the transition from regulation to deregulation? How to regulate cross market issues? How to tackle joint dominance? How to guarantee real equality of access?

Ubiquitous Infrastructure in Europe, the Americas, Asia & Emerging Markets

Giorgio Prister, Consultant, Italy, **moderator** of this session welcomed the panellists and participants and introduced the overall topic.

As chair **Kathryn Brown, Senior Vice President, Public Policy Development and Corporate Social Responsibility, VERIZON COMMUNICATIONS**, USA, [www.verizon.com] shared her great knowledge and her vision for the future in

Ubiquitous Infrastructure in Europe, the Americas, Asia and Emerging Markets

Verizon is one of the largest communication and entertainment companies with a presence around the world. In the U.S., Verizon is both a wireline provider and now one of the largest broadband and wireless providers with Verizon wireless owned in part by Vodafone.

The world has changed and technology fair competition forward looking policies and most importantly the consumers have changed the way traditional telephone companies do business in the U.S. Verizon moved from a wireline world to a mobile and converged world, from a narrowband world to a broadband world, from a voice centric world to a video centric world, and from circuit switched to packetized.

The wireline voice in the U.S. is declining year over year and wireless subscribers are growing exponentially. The challenge for a company like Verizon is to move both with technology and consumer demand and to move towards the next generation of networks.

There is rapid broadband growth in the U.S., both DSL wireless and now fibre. Verizon is building a FTTH network in parts of 18 U.S. states and is deploying the network in approximately 400 communities across the U.S. The company recently announced 50 Mbps services in parts of the 18 states – with TV service in 7 states. Verizon is passing 3 million homes and businesses and the company's target is to pass another 3 million this year. Verizon intends to bring this kind of bandwidth to 18 million homes passed by the end 2009. The total investment is 22 billion USD.

The aim is for 100 Mbps connections and Verizon is already able to demonstrate this with the use of electronics on the end of this network. The opportunity for Verizon is 33 million households and 3.6 million businesses.

Verizon is building a high-capacity network to the home which includes broadcast video, 180 channels, voice data and IPTV. It is a fibre optic cable that has high reliability and huge capacity. The customer take-up and demand is very robust, however, it is requiring a complete change in the company's network architecture in the U.S.

Prices are 12.95 USD for 24 channels and 39.95 USD for 180 channels and probably the richest video-on-demand library in the U.S. 99.4% are subscribing to the premium tier and HDTV is a big seller. The local communities want this service; the competition with cable is something they are clamouring for.

The challenges are that it is a whole new technology and a truly converged service - Verizon converged video, broadcast, high-speed community access and interactive functions all on the same high-speed fibre optic line to the home. This raises public policy issues – not regulatory issues but public policy issues that need to be discussed, i.e., availability of this technology, privacy and security issues, the role of the regulator in this very robust and competitive market, and for consumers the ease and use, the seemlessness of use, DRM copyright issues, and also child safety issues in order to protect children from certain content. But the key challenge in both the commercial and public policy space is to stimulate innovation and to get choice for consumers and innovators.

Joao da Silva, Director for Network and Communication Technologies, DG Information Society and Media of the EC, [http://europa.eu.int/information_society/index_en.htm], cleverly guided on

Challenges in a Networked World

The ICT based economy is characterised by a radical move from a situation of scarcity of resources towards a situation of abundance. This has far reaching implications. If some people are still seeing a shortage of information and content, the future networked word is clearly characterised by information overload. A study published by the University of Berkeley shows on various media how much information was generated in 1992 and 2002 - they are terabytes, petabyte, and exabytes! In a very short period of time from 1999 to 2002 there was a dramatic change with non magnetic media basically disappearing and being replaced by magnetic media.

This trend is accelerated by the constant decrease of storage cost. Storage costs are going down and by 2017and beyond it will most likely be a negative cost. Still, the question remains as to how to optimally store, organise, access and manage this ever growing data repository.

A related question is how to make all sorts of services and information available all over the world? The example of Google is interesting in that it has some estimated 450,000 servers worldwide in 25 places, server farms and handles a huge amount of information. Google has based its entire philosophy on using cheap storage and high-speed communication networks. This is how they can deliver in 20 milliseconds thousands of answers to basic queries. This tends to indicate that the service and data management architectures required for future complex usage scenarios will more likely be based on large scale distributed systems of elementary resources than on centralised architectures. This has potentially important implications on how future networked infrastructures will have to be conceived designed, and controlled, with cross border issues becoming the norm rather than the exception.

Another element will be broadband access. Mobile usages are poised to be based on broadband technologies, mirroring the trend of fixed access. 100 Mbps is achievable today. What can be expected beyond this? If speeds up to 100 Mbps could be achieved on a mobile - how much could be achieved on a fixed line? There are still today's uncertainties as to how this abundance of access capacities will be economically justified, and for what applications.

To answer those questions one has to look at the potential drivers. People will certainly require more speed for future applications and also entrepreneurs will come forward with applications that will require more and more speed.

These requirements may come from a scenario where we have deep sensory networks and all kinds of little devices and tags all over the place generating data. RFID is a first move in that direction. Then there will be all kinds of multiple and super high-definition channels, 3D TV and all kinds of novel applications – most of them driven by the user. Those elements will certainly drive the process will push access requirements to go beyond 100 Mbps.

This trend is sustained by the creation of user content in all kinds of networks, blogs, or video blogs, currently happening at a phenomenal rate. There are 55 million blogs today and the blogosphere is 100 times bigger than it was 3 years ago. 2 blogs are created every second. These developments will have profound implications for network architectures and network management in particular. These issues are consequently at the heart of the ICT R&D programme that the EU will support under the 7th Framework Programme (2007- 2013)

During the **Q&A** part of the presentation, the question of "who is going to pay for the storage" raised. Joao da Silva emphasized that the ongoing debate on Net Neutrality is one of the major current problems and will probably not be solved within the next 2-3 years. On the one hand telecom operators claim that someone should be paying for the content going through their pipes, such as companies like Verizon asking Google for money, and companies like Google on the other hand are saying it should be reverse: the telecom operators should be paying, because without the content, they had nothing to offer. It is a very difficult debate to solve because it has implications in terms of competition and who has significant market power, which is a most important element from the regulatory perspective. The other aspect is that the Internet as such may change: Today, people talk about NGNs and NGI – however, at the end of the day there might be a new Internet that is not NGN or a NGI but something beyond that, with different architectures from that of today.

Jørgen Friis, Deputy Director-General, ETSI (European Telecommunications Standards Institute), [www.etsi.org], provided an great insight in ETSI's vision of

Robust Standards and Ubiquitous Service Interoperability

Standards are basis for all communication. Why talk about open standards? 80% of the business today is impacted by standards and there need to be open standards with broad support from all the stakeholders, i.e., not only the vendors but also the regulators operators, users and others.

The key to bringing all these parties together is to achieve consensus. Once consensus is achieved, there is broader support and open standards will survive longer. The IMS Forum is an example of this. There is not only need for wide support but also for future proof because at the end of the day the industry wants to base their investment on predictability; they want to predict the future as much as they can. This is not always possible, but knowing that there is a standard to be applied for the network or the terminals the companies will invest in provides confidence. The Next Generation Network is another example. Standards are now being introduced in the same way is has been done with the 3G.

In the end, it is all about money and to reduce the cost of producing products. Standards are very important but they do not do it all. They need to fit into the value chain of getting the product to the market and need to cover everything related from requirement setting, protocol definitions, interoperability and profile and also go into how standards can be applied.

With regards to the robustness of a standard, ETSI produces all elements needed to offer interoperable products to the market. Interoperability is the key and standards do not make it alone.

This is why ETSI does not only focus on standardization, even if this is the core business, but also on the other elements that bring interoperable products to the market place. ETSI has different technical bodies and services that support the industry. The organisation has the best experts in the world when it comes to testing and a strong competence centre in this field. ETSI does not only produce test specifications for its own standards, but also for other standards, e.g., those developed by IEEE.

ETSI's work is much about interoperability but also about architecture. ETSI is not alone in producing standards, and is sometimes in competition and sometimes complementary to other organizations. In many cases ETSI has to collaborate with other organisations producing specifications to ensure that the products that are delivered to the customers are interoperable. ETSI intends to become more involved in defining the architecture of all the building blocks that are either produced by ETSI or someone else. ETSI might have some advantage in this field due to a good network and many other regional standards organisations through the Global Standardization Collaboration.

Bernard Mathieu, Head of Radio Communication Programs, CNES, France, [www.cnes.fr], provided an excellent insight in

The Satellite Offer Trends and Mid Term Perspectives

Most applications use a major advantage which is the broadcast advantage of point-to-multi-point capability of satellites. The use of DTH platforms and TV distribution to the homes is the major service part but also Internet content delivery, telephony, data transmission, etc.

There are some strengths and weakness in the field of satellite solutions. With regards to satcom solutions, strength being the unique capability for broadcast and push services, the wide coverage and universal service capability, seamless integration and good complementarities with terrestrial networks and the ability to bridge the increasing digital divide to offer broadband in remote areas and underdeveloped areas. Weaknesses being current satellite channel cost which is still too high for broadband access, a rather high capex and the time needed for the development of new and innovative solutions, as well as the strong competition with terrestrial broadband network solutions: DSL, WiMAX, etc.

Satcom trends and perspectives for broadband access systems: 1) Implementation of multibeam broadband access systems since 2005: Wildblue, IPStar; 2) other operators are considering full Ka Band multispot beam systems (in some cases for local TV distribution): Direct TV, SES Americom AMC 17; and 3) a new cycle of growth expected with multibeam Ka Band satellite systems using standards (DVD-RCS/DVBS2, Docsis).

Satcom trends and perspectives for mobile systems: 1) Development of a new generation of Inmarsat IV with BGAN platforms and services for maritime, aeronautical and land mobile applications; 2) success of radio broadcast to mobiles in the USA; 3) definition and deployment of new systems mainly for digital mobile broadcasting (S-DMB): MBSat (Japan), TVMSL (Europe), Eutelsat and SES Global will exploit and jointly market the first European S-DMB space infrastructure on board W2A Eutelsat satellite to be launched early 2009; 4) Satellite Data Link System for air/ground communications in complement to terrestrial VHF

systems for Air Traffic Management; and 5) new applications, such as Internet access for high speed trains, civil protection, location based services and applications using combined satellite positioning and timing systems (GPS, EGNOS, Galileo) and satellite or terrestrial communication systems.

Lionel Chmilewsky, Senior Vice President, PROXIM WIRELESS, France, [www.proxim.com], gave a very persuasive demonstration of

Wireless to Bridge the Digital Divide

Proxim Wireless is a network infrastructure provider with more than 25 years of existence worldwide. Proxim Wireless was awarded a number of awards.

The ratio between developing and developed countries as regards communications, mobile communication and WiFi communications is 1:4. As regards fixed communications, Africa has an average of 3 fixed lines for 100 inhabitants; this figure is about 35-40 in the U.S. and Europe. As regards mobile infrastructure, the G8 countries, representing 14% of the world population, accounts for 32% of the mobile users. Even more striking is that there are the same number of Internet users in the G8 countries than in the whole rest of the world combined.

First, there was the 2G network which offered very good mobility indoors and outdoors, but also a rather limited data throughput. 3G offered a better data throughput but not to the extent it should be. Then WiFi provided a very good data throughput but very low mobility. This is why WiMAX was created: The fixed WiMAX supports very robust data throughput but is limited in terms of mobility; the mobile WiMAX, which is going to start to be deployed next year, supports high data throughput and high mobility. WiMAX provides both indoor and outdoor coverage both for residential and business and systems that go up to 25 Mbps and about 20 km range. One base transceiver station can have up to 600 users. The cost of a WiMAX device is 200-300 USD. Mesh technology is very well adapted to dense areas but also to remote areas. The idea is to have one Internet port and then to mesh the access points with other nodes in order to have free access in a large area.

The first interesting application of wireless technologies is to provide access in remote areas. Together with Intel, Proxim provided broadband access in a very small village in the Amazon to primarily bring broadband to healthcare centres, public schools, community centres and universities. Another example is the area around Castilla la Mancha in Spain, where Proxim provided broadband connectivity to 400 villages by using satellite and wireless technologies.

The second important area of application is security and surveillance. In this context, Proxim has worked with the Californian Department of Transportation to protect the bay area's transportation infrastructure consisting of 7 bridges and 2 tunnels by coupling IP cameras and wireless networks, and also with an airport in France.

A third important area of application is to provide mobility within public transportation, like for instance hotspot access in a ferry connected to a wireless link to the central centre, or to equip the "conductorless trains" in Korea.

Wireless can help bridging the digital divide because it enables more players to come, licensed or unlicensed, and a very fast and secure deployment – starting either from a

"green-field" or from an existing network. It has very low consumptions and consumption and can connect up to 50 new subscribers per day per team

As regards the Return on Investment: The typical capex per indoor subscriber is 300 USD for WiMAX (incl. installation etc); the typical capex per outdoor subscriber is 450 USD for WiMAX. The typical payback is about 5-10 months in developed countries and 10-16 months in developing countries.

Andrew Gilbert, President, QUALCOMM Europe, [www.qualcomm.com], provided a highly interesting insight in

Next Generation Mobile Networks

Qualcomm is a leader in developing innovative digital wireless communications products and services for the wireless industry. The company is presented all across the world.

Qualcomm conducts a considerable amount of R&D; the company's R&D spending amounted to 18% of its revenues in 2005. Pre-existing applications are waiting to be mobilised and can open huge new markets and growth opportunities. One of these applications is broadband data and Internet access – one of the fasted adopted technologies around the world. As regards the mobile world, those services are now moving beyond pure Internet access. The services are going beyond downloading music and videos and into some really exciting areas such as social networking. Trends that have been observed in the wireline world can now be seen in the mobile world.

In October 2006, the mobile operator 3 launched a service where people can up- and download content as individual subscribers. 3 has counted more than12 million downloads since this service was launched. But the upload is even more interesting as it documents the increase of peer-to-peer networking and community interest groups wanting to share their info with others. 3 has met that demand with an interesting service which has resulted in 100,000 uploads – little clips with what people are doing in their social lives etc. Vodafone has taken up the high-speed data option very strongly. In a recent business release, the company announced that 15% of the ARPU is based on rich 3G data services.

Fixed and mobile are starting to converge and as the fixed environment has shown: once people get high speeds and more ubiquity and availability, a remarkable dynamic in terms of the type of applications that people use is set free. More and more people are doing what they do in a fixed environment in a mobile environment.

However, just because people have access to broadband does not mean they will use it or that they will pay for it. Currently handsets are driven by a single service mentality and that is voice. Mobile broadband data services and rich data services have to be appealing and easy to use in order to encourage people to discover such services. O2 is launching in Europe their new Ice Phone to make the user interface less about voice and more about data services. People can get a much more active home screen, ticker tapes rolling across with interesting news updates, product updates or leisure or community interest updates. Subscribers can reformat or reprofile their mobile phone to discover services that are of interesting for them and themed to their special interest group.

Catherine Fox, SVP, General Counsel at SES GLOBAL, Belgium, [www.ses-global.com], presented with great competence and clarity

Satellite Goes Triple Play

SES Global has 44 satellites and is Europe's number one provider of world spanning satellite distribution capacity. SES Global operates through 100% owned companies and has three "pillars". The first one is based in Luxembourg and is the number one director home broadcast satellite system in Europe.

In the U.S. with SES Americom, SES Global is a living example of a hybrid solution since it feeds every cable head end in the USA and serves indirectly approximately 80 million cable households. The recent acquisition of SES New Skies in the Netherlands is to reinforce presence globally and better presence in interconnectivity and regional distribution services. SES Global also operates through regional satellite operators and has a majority shareholding in SES Sirius which covers northern Europe. The company also participates in AsiaSat and in Canada and Latin America through QuetzSat and Star One. Even if leasing transponder capacity is the core business of SES Global, the company also provides satellite centric platforms and services and is expanding into governmental activities, servicing government customers on top of their media and enterprise customers.

SES Global will launch Astra2Connect in the first quarter of 2007. Astra2Connect provides the response to a situation where many end-users do not have access to broadband or only at a rather high price. Astra2Connect is both interactive and low cost and provides broadband Internet access and triple play, VoIP, IDTV and content-on-demand. It also can be combined with DTH and high definition. Thus, Astra2connect provides the consumer with something in line with the current ADSL offering but at a very low price. Astra2Connect is a small satellite modem which is equipped with an antenna and an interactive low-noise block converter.

Since SES Global will be selling wholesale, the company is targeting large European telecom operators, Internet service providers, and broadband operators. SES Global will offer 3 service packages and is also looking to spread the service to other areas. A participation in the operation One Laptop per Child is planned.

According to a study published by Price Waterhouse Coopers, up to 700 million European households could be interested in Astra2Connect since they will be without connection the ten years to come.

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During the **Q&A** part, Mr. Prister addressed the following questions to the speakers: What your companies are planning in terms of investing and getting the right return in former developing countries like China and India or developing countries in Africa? Can we imagine new generations of mobile phones and services for those regions similar to the 100-Dollar PCs?

Mr. Gilbert underlined the importance of getting the price point down, i.e., offering a very high powered, highly integrated, high value chip set at a very low price. With its CDMA 2000 technology, Qualcomm managed to get the price point of a high value mobile phone just about 40 USD in many North American and Asian countries. Innovation is not only about rich

data services but also about how to make things smaller and cheaper. Device manufacturers tend to focus on the high end, where is the highest value and the highest margin. Qualcomm is trying to enable a broad ecosystem using technology licensing and their chip set sales to enable more entrance into the market. The company has a lot of Chinese customers who manufacture handsets at very low prices and who are able to miniaturize and bring down prices. The challenge for some of the existing major market vendors is to look at the whole spread of devices and not just at the high end.

Mr. Chmilewsky emphasized that standardization will help to bring cost down. As regards WiMAX, its whole purpose is interoperability between vendors so the idea is to ramp up volume and the cost goes down. Apart from the equipment side there is also the deployment and the maintenance side and vendors have make sure that the cost cover both the deployment and the maintenance of the network.

Ms. Fox stressed that Astra2Connect is a product that is very helpful for developing countries: It is easy to put in place, does not require a lot of maintenance and the pricing can be very easily compared to ADSL.

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Hiroki Sumida, Director of the Europe Representative Office, National Institute of Information and Communications Technology [NICT], Japan, gave a very distinguished presentation on

Frequency Open Policy, Journey to Japan in 2011

The Japanese Government will allocate over 1 GHz of spectrum to the wireless industry until 2011.

In 2000, broadband charges were not so cheap. According to ITU statistics, broadband in Japan became the cheapest all over the world from the end of 2002. Japan has 24 billion broadband subscribers and 6.3 million optical fibre subscribers. FTTH has been growing fast. The growth rate of ADSL is decreasing due to the transition to FTTH that is moving rapidly towards 100 Mbps. Japan has 94 billion mobile phone subscribers. Over 60% are using IMT2000 3G, which is growing rapidly. The rate of Internet subscribers over mobile phone reached nearly 90%.

Up to now, the development of Japanese wired and wireless broadband services is satisfactory but in order to realise a ubiquitous society, the government should provide enough radio spectrum to the wireless industry. Related problems, such as the scarcity of spectrum or interference, should be solved within governmental initiatives.

In order to meet future needs in radio utilisation, bandwidths of at least 1.5 GHz in the useful frequency band under 6 GHz require reallocation. The procedure for spectrum reallocation is very important – in 2003, an amendment on radio spectrum usage was introduced. A survey of the actual radio spectrum usage has been realised in all frequency bands. Every 3 years the government publishes its estimation on usage of spectrum allocation. Frequency users asked to stop their spectrum usage will be compensated for their loss. In 2004, the radio law was amended to meet this requirement and a new radio spectrum usage fee was introduced in 2005

The new expected services are next generation mobile radio communication systems, such as enhanced 3G services, 4G and WiMAX offering 100 Mbps even when on the move. But also next generation intelligence home applications and home networks in the rural areas, and Intelligent Transport Systems to reduce road accidents and provide greater convenience.

Alain Ducass, Head of "Digital Country Planning Team", DIACT, French Prime Minister Service, France, reflected the question of

Which Ubiquitous Infrastructure for France?

France has become one of the leading countries as regards broadband in Europe. France has 11 million broadband connexions: 10.4 million via DSL, 0.6 million via cable, and 5,000 via other technologies. However, the huge growth of DSL is not enough for a ubiquitous society. A ubiquitous society requires the use of mobile and fixed broadband and advanced usages.

The French policy for ubiquitous infrastructures relies on a number of pillars – the first one being a national reference strategic plan for cohesion funds to use European regional development and social funds for ubiquitous infrastructure.

The second pillar of the policy is partnership between the government and the regions through contracts and programmes spanning several years. The third being competitiveness poles. Some of these poles of excellence are closely related to Information Societal aspects like telemedicine, education, etc.

The fourth pillar is the decision of the Prime Minister on 11 July 2006 to adopt a national initiative to foster broadband deployment all over the country and amongst different populations. This initiative also foresees spreading broadband in each of the 36,000 municipalities of France's very remote areas.

The fifth pillar, the broadband strategy for digital country planning initiated by the Ministry of Industry, has just started with a publication of a study and comments FTTx.

Philippe Besnier, President, NUMÉRICABLE, France, [www.noos.fr], presented pioneering developments with

Cable – New Services on Ubiquitous Infrastructures

Numéricable will be the first in Europe to launch a 100 Mbps network before the end of the year.

Cable networks had faced many difficulties in France: One the one hand, France Telecom built the network and invested a lot of money, on the other hand the commercial operators, which did not invest in the network but only were involved in the commercialisation, were inexperienced in mass marketing.

Furthermore, the cable sector has been regulated under an archaic framework not conducive to developing competition or developing an alternate infrastructure capable of competing against the public switched telecommunications network. Cable operators have been subject to a number of restrictions. They were forbidden to have an exclusive zone with more than 8

million inhabitants, which limited the possibilities for mergers between operators. Once this 8-million inhabitants antitrust limitation has been suppressed in December 2003, the cable sector gained momentum.

The cable operator UPC acquired Noos in July 2004 and in March 2005, France Telecom and Canal Plus sold their network to the group Cinven and the industrial operator Altice. On 19 July 2006 the same Cinven and Altice bought Noos-UPC. Today, cable is finally unified in France – that means 9.5 million accessible households, 4.8 million subscribers, and 950 million EUR revenues. Since October 2006, Noos Numéricable is offering the most attractive triple play offer on the French market, with 30 Mbps Internet, 200 TV channels and telephony.

France has 11 million high-speed internet subscribers and only 700,000 cable subscribers. In other countries around the world the ratio is fifty-fifty, with sometimes a bit more cable subscribers than ADSL subscribers. Noos Numéricable is rapidly expanding its fibre optic network and by the end of 2007, half of the City of Paris will covered. The entire city will be covered by 2008.

Noos Numéricable brings the optical fibre to the subscribers' doorstep. The company can take advantage from its already existing high-speed network which is the coaxial network – enabling to develop quickly 100 Mb access and to provide optical fibre to those interested in having direct access on optical fibre. The company does not have the constraint of having to recreate an internal network because it already has a very high-speed network. At the end of 2006, Noos Numéricable will provide optical fibre to 400,000 households. The company will invest 600 million EUR in 3 years.

Thierry Sommelet, Department "Digital Development of the Territories", CAISSE DES DÉPÔTS ET CONSIGNATIONS, France, [www.caissedesdepots.fr], provided a captivating presentation of

Public Financing of Local Broadband Infrastructures in France

The Caisse des Dépôts et Consignations (CDC) is a public financial institution which is in charge of managing savings and investing those savings in long-term projects usually when the private sector does not invest anymore.

In 2001, a large programme was launched to study the current state of broadband infrastructure is in France. Local authorities have been preoccupied by the digital divide and started to look on ways to invest in broadband development on their territories. However, local authorities have not been allowed to be telecom operators until 2004. In 2004, the law changed and local authorities now have the right to be telecom operators.

The local governments in France have initiated more than 150 projects for the creation of neutral telecom networks. These projects are using fibre, WiFi, WiMAX, or satellite and sometimes cable technologies. Most of these projects are carried out through public private partnerships. Following a public tender procedure, the local authority selects a private company to build and operate the telecom network. Roughly 2 billion EUR have been invested - half is public money and the rest provided by private telecom operators or civil engineering firms, which typically have a 30% minority stake in the project. 26 of these projects have finished the tender stage and 13 are already in operation.

All these projects are for neutral networks which are open to all ISPs and to all telecom operators. Most of them use DSL and local loop unbundling to provide broadband in the biggest possible part of their territories. The current stage of this project is to look at how to bring today's broadband to remote areas.

The success of these networks rely on two conditions which were not granted by the public sector, at least by the public authorities. One of them was the conditions for the local loop unbundling which are very good in France and have allowed a large broadband penetration; the other one is that the initial network of France Telecom was very good and the company has continued to invest in the enlargement of this network which also has stimulated these projects. The experience has shown that once a public project was announced, France Telecom was quite motivated to further deploy its network and also to lower its prices, especially for SMEs which is one of the key preoccupations of local authorities.

These projects also allow ISPs to offer local loop unbundling most of the time. The main goal of the project is not only to cover the entire French territory but also to allow people in the most rural areas of the country to have access to the same offers as those in Paris and other larger cities.

At this stage the impact is quite limited as all this is quite recent. The percentage of the lines unbundled through these projects by the end of 2006 is 6-7% of the total number of unbundled lines. This is very easy to understand since rural exchanges are very small and a lot have very few lines.

However, very soon the impact will be very significant: At the end of 2008 approx. 3,700 exchanges are expected to open through this project. And the work is far from being over as there are 12,000 exchanges to cover the whole country.

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During the concluding **Q&A** part of the session Ms. Brown addressed the speakers on the speed and the ROI. The evolution of speed, ROI and the question of how does one invest and make a business out of it will be the determining success factors.

Mr. Chmilewsky replied that one has to distinguish between the theoretical speed and the efficient speed at the end-user side. Trying to bring the highest level of speed to the end-user radio has different constraints than cable and a number of parameters to take in account. The industry is making great progress to provide this speed. WiMAX can bring today 20 Mb at the end-user range with mobility limitations of 5-10 km. But then it depends on outside conditions like how many people are using it, interferences, etc.

Mr. Besnier replied that cable is the most efficient technology for high-speed.

Mr. Gilbert proposed to think of speed no just in bytes per second but all in kilometres per hour. How quickly can a person be travelling in a vehicle like a high-speed train hundreds of kilometres per hour and still maintain a multi-megabyte connection? Aspects like the speed of a packet across the network, the ping, or the roundtrip time dramatically impacts the performance of data services. It is not just about peak headline rates one can simulate in the lab.

Mr. Mathieu stressed that satellite is mainly dedicated to the broadcast of TV channels. In contract to increasing the speed on a terrestrial link to pass video and TV channels, one has to take care on a satellite link. A 1-2 Mb data rate is mainly for Internet access because TV channels pass beside. As regards high-speed access for trains, SNCF, the French national rail company, is relying on satellite due to its universal coverage all over Europe.

Mr. Sommelet stated that France is mainly an ADSL country. It is still too early, especially with the WiMAX licenses just being granted, to know the real cost and effectiveness for these kind of projects presented above. From a public investor's point of view, a payback period of 5 to 6 years for the densest areas up to 10 years for the large projects covering the densest areas is expected. The business plans regarding these projects are still uncertain. These networks will constitute a tremendous basis to extend high-speed coverage to most rural areas where the ROI is even more difficult to reach.

Mr. Ducass stressed that wireless and cable are competing rigorously in France. He questioned whether there should be public policy thinking around a multiple platform strategy.

Mr. Da Silva underlined the public policy in place to facilitate competition. There will be different technologies to access the network, such as WiMAX, WiFi, etc, and they will coexist and compete. With regards to ROI from a political point of view, the EC is very much keen on providing the industries in that sector the possibility to reach ROI goals through economies of scale, scope and integration.

Media & Content Issues in a Convergent Environment

The **chair** and **overall moderator** of the session **Patrick Dunaud, Partner & Chair of the Litigation Department, LATHAM & WATKINS**, France, [www.lw.com], welcomed the panellists and participants and conducted the session with great ease. Before introducing each of the speakers, he gave a brief overview on the session's organisation. Session 2 is divided into two parts – with part 1 focussing on general experiences and part 2 focussing on specific experiences in the field of media and content.

Donald Abelson, Fellow, Annenberg Center for Communications at the University of Southern California, USA, gave a very distinguished presentation on

Internet Delivery of Content & Media: Dilemma for Regulators and Negotiators Alike

The past decade has seen the development of technological means to deliver over the Internet a television-like experience to consumers using their home computers. This development challenges government officials who have for so long depended upon the separation into distinct categories of computer-generated messages and television signals. Likewise trade officials seeking means to either open markets or protect them are equally presented with challenging alternatives.

Regulatory authorities are concerned about a range of public policy issues regarding broadcasting of audiovisual content. These issues include political speech, hate speech, obscenity & pornography, advertising and cultural diversity. In the past, technology repeatedly challenged regulators to change and sculpt their rules as distribution systems changed.

Trade officials turned their attention to carving out rules for international services trade in the 1980's. With the completion of the Uruguay Round in 1993, and the subsequent creation of the World Trade Organization (WTO), services trade were covered by international trade rules. However, four sectors did not see specific results in the Uruguay Round: maritime transportation, movement of persons, financial services and telecommunications. Many countries (such as Canada and Member States of the EU) refused to make specific commitments regarding audiovisual services. Thus, they did not agree to provide market access to foreign services nor to extend national treatment to those services.

The audiovisual issues arose again during the negotiations under the Services Agreement of a chapter on basic telecommunications. The circumstance was as follows: even in mid-1990's it was apparent that changing technology would soon enable the distribution of cultural content, such as sound recordings, over the Internet. Thus, a discussion took place on whether "computer-related services" that resulted in the delivery of audiovisual content were already covered by the WTO. It is an interesting question; one on which there was no agreement then, nor is there agreement now.

The past few years have seen a series of seemingly unrelated attempts by regulators to control Internet-delivered content. However, the efforts of regulators will become increasingly desperate as technology provides greater flexibility in circumventing rules meant to control

the delivery content. The first hurdle is to develop agreed long-term goals, such as economic development, cultural enrichment, protection of the free exchange of ideas, etc. Many of these goals have already been articulated (and agreed) in various international fora.

Here are some specifics: the goal is to agree on principles that set "good regulatory practices" for the Internet delivery of content and media. These principles would be made formal within the context of future trade talks, and would bind governments to bring their domestic rules into compliance with them. Thus, they would apply to the Internet delivery of content and media. Included in the principles would be the following concepts: i) adoption of transparent procedures; ii) recognition of legitimate domestic objectives; iii) guarantee of market access; iv) application of non-discriminatory principles.

Each country has a set of objectives that it pursues to ensure that content and media are appropriate within its social, political, economic and cultural framework. The "good regulatory practices" principles would recognize the legitimacy of these objectives, as long as they are not articulated with the intention of distorting trade, nor have the effect of unjustifiably distorting trade. Indeed, there are certain objectives that are agreed by all nations; for example, all governments share the goal of preventing the trafficking in child pornography. There are other objectives that are unique to one nation only; for example, in Malaysia it is forbidden to criticize one of the seven sultans. It is unlikely that any other country has in place a rule that outlaws this practice.

It is the enforcement of domestic rules that becomes the issue. It is realistic to expect that governments would willingly cooperate to shut down trade in child porn, and that no trade complaints would be raised as these efforts are carried out. It is less realistic to imagine that governments would agree to aggressively and actively control websites that contradicted Malaysian law. And, it is possible that a trade complaint could surface, especially if the Malaysian law was suspected as being a disguised trade barrier aimed at limiting the exchange of international media and content.

It is perfectly possible for regulators and trade officials to successfully work on proposals that provide credible ways to pursue legitimate domestic objectives, while ensuring the free flow of services and of technological change. Interestingly enough, trade officials have long recognized the validity of the pursuit of "legitimate domestic objectives". The concept is incorporated in the WTO Services Agreement, as well as in the key legal concept of the European Community's 1992 harmonization initiative.

The concept of non-discrimination (that is, national treatment) would be carefully treated. A distinction would be made between regulatory treatment and financial incentives. That is, the principle of national treatment would apply to all regulations. Thus, governments would be bound, with respect to their rules, to treating foreign and domestic content and media suppliers similarly. However, with regard to financial incentives, such as tax breaks and subsidies, governments would be permitted to distinguish between foreign and national suppliers. With one proviso, and that is that the incentives were not specifically aimed at encouraging exports.

To prevail in these efforts, the intellectual starting point is the recognition that no single agency or government will be successful over the long term in controlling technological change. The best that can be hoped for is that technology can be saddled to achieve the goals of these officials.

Luis Rodríguez-Roselló, Head of Unit "Networked Audiovisual Systems", DG Information Society and Media, EC, [http://europa.eu.int/information_society/index_en.htm], gave a very interesting insight into the European Commission's perspective of

Networked Media - Research Challenges for Mastering the Media Revolution

The DG INFSO of the European Commission plays a triple role: as a regulator of telecommunications, as a regulator of content and as a supporter of the development of content and the research environment.

The media revolution has a number of features: media are becoming more and more user centric, socialized, pervasive, personalised, and context aware. Media on the move is a clearly irreversible trend. Mobile TV is a clear example of this trend. Furthermore, the media revolution is characterized by the omnipresence and proliferation of audio-visual content and an ever increasing quality (e.g., digital cinema, Ultra HDTV, computer games etc). Barriers between professional and non-professional media are getting blurred and users are becoming more and more creators of their own content. There is a convergence of media and communications, while content generation is moving to the edge.

The next wave of media in the transformation process from analogue to digital is networked media. Networked media are non-linear and participatory and include blogs, podcasting, wikis etc. Key drivers are still broadband, communicating devices, content and bundled services, as well as market demand – but, a new coordination and collaboration between groups that previously did not have to interact much, such as broadcasters, telecom operators, content providers and consumer electronics, is required to succeed. In order to bring together the current silos of the market, the Technology Platform NEM (Network Electronic Media) has been launched by the EC.

A good example of convergence is Mobile TV. Mobile TV today is still based on the traditional way of broadcasting, i.e. one-to-many TV-centric services and "singular" technology implementation. When thinking about interactive multimedia services on demand as the features of a next generation, several lessons learned from other experiences have to be taken into account: A lesson learned from OSS is that services should work anywhere on anything and on any network. The lesson learned from "podcasting" is the shift from "one-to-many" to "one-to-some" service and personal on demand services - anywhere and at any time. P2P showed the importance of social networks with no central distribution. This leads to number of new requirements, such as improved access to content and services via powerful search engines helping the user to find the relevant information, but also cross media consumption, service discovery and the provision of a user-centric experience.

The EC has considerably contributed to the development of these technologies: In the 1990s, within the FP3, the EC fostered the development of compression algorithms. Then within FP4, in the period of time 1994-1998, the EC focused on delivery by supporting new platforms providing new services in order to move towards interactivity within the FP5 and the support of DRM and mobile solutions within FP6. The focus of the upcoming FP7 will be on user centric media. R&D shall ensure that the whole media chain is optimised for new ways of media consumption and creation.

The elements of networked media are i) multimedia networking (i.e., seamless access anywhere/anytime, context-aware, personalisation, collaborative, any-to-any and ad-hoc networking, immersive communication); ii) multimedia content handling and management (i.e., audio-visual content distribution and adaptation, management, storage, intelligent

search and retrieval, and rendering); and iii) multimedia applications and experiences (i.e., user centric multimedia applications, content creation and sharing, interactive media, immersive media, and very high quality media). All these three elements have to be tackled in an integrated manner.

The EC has come up with a draft work programme of the FP7, where all these elements are dealt within the following two areas: Interoperable multimedia network and service infrastructures and end-to-end systems and application platforms for new creative forms of interactive, immersive media and experiences, mixed and augmented reality, 3D visualisation etc. The expected impacts of this strategy are that Europe becomes the world leader as regards the generation of media technologies, the wide adoption of new media consumption and production patterns, new business opportunities in the field of convergence, and a prominent role of the EU in global standards.

There is significant talent and know-how in Europe to deal with the challenges of the media and content of the future. However, in order to succeed these resources must be pulled together and the following conditions are prerequisite: R&D investment by the private sector needs to be substantially increased. There is a need for greater and more focussed coordination of R&D efforts and a more agile view of convergence. Moreover, both evolutionary and disruptive approaches are needed and the collaboration of an increased number of actors from different sectors becomes a condition of success. Finally, innovation must be unleashed: putting users at the centre is the best way to try to anticipate future usages.

Janine Langlois-Glandier, President of the Mobile TV Forum, France, outlined with great knowledge the current state of

Mobile TV in France

The Mobile TV Forum brings together over 50 French organisations, including mobile phone operators, satellite and terrestrial broadcasters, network operators, software developers and content providers. The Forum has been created in 2004 on the initiative of the French Ministry of Industry with the objective to coordinate and to debate the technological, industrial and regulatory environment needed for the introduction of Mobile TV and to promote Mobile TV that uses broadband telephone systems on broadcasting networks. In 2005 and 2006, the French broadcasting authority CSA authorized extensive trials to test Mobile TV broadcasting technology. 3 DVB-H trials, 1 T-DMB trial and 1 MediaFLO trial have been successfully realised in France.

What are the current developments in mobile TV services and technologies and those in the foreseeable future? In the short term it is inevitable that Mobile TV will be transmitted over traditional broadcasting frequencies. Point-to-point 3G and Edge streaming networks are running in France since 2004 and proved to be popular. Technologies that transmit TV services to mobile handheld devices via broadcasting networks are currently the most suitable for Mobile TV market. In Italy, Mobile TV on broadcasting networks was launched in June 2006. France will launch Mobile TV on the occasion of the Rugby World Cup in September 2007.

Thus, Mobile TV broadcasting could become reality in France in 2007. The frequencies are already available and allow the creation of multi-city network. Mobile TV will be launched in the UHF-band as this band is best suitable for DVB-H in terms of efficient spectrum use. By 2007, a network that uses DVB-H technology and the UHF-band will cover all French cities

except those close to borders. The network is known as M7. Frequencies have been identified for about 100 French cities. The M7 can be largely deployed in most of the major cites in France. The Mobile TV Forum supports the introduction of a standard that meets European wide consensus in order to ensure interoperability. DVB-H allows a large number of channels to be broadcasted and most of the European countries have adopted DVB-H.

What benefits can the public at large expect from these developments? Mobile TV seems to become a mass market in the near future. The trials conducted in cities like Paris, Madrid, Berlin or Oxford showed that there is a strong interest in Mobile TV services. The launch of Mobile TV in Italy attracted 150,000 subscribers in just a few weeks. By Christmas, this number is expected to raise to 500,000 subscribers. Mobile TV will be a mass medium for broadcasting content such as news, education and entertainment especially to young people.

What makes Mobile TV different from traditional TV at home? Mobile TV will lead to new uses and new needs. It will change viewing habits and due to its interactivity it will contribute to the development of participatory TV. Mobile TV offers tremendous business prospects and the stakes for the French industry are high because there are many French companies exporting services, know-how and products in this special area. Mobile TV could create more than 10,000 jobs within 18 month. Once the DVB-H standard will come into effect in France in 2007, it will provide the French Mobile TV industry and content producers with large business opportunities.

What are the right conditions for making the best use of these frequencies? How can the legal framework be adapted to allow for needs, markets, and technologies that are changing fast? As regards the French legislation, a bill is currently discussed in the upper chamber and will be submitted to the National Assembly in 2007. Most of the Forum's members agree that the model used should be a mixed model combining free channels and pay TV. There is a common agreement in the Forum that consumers should pay a small fee in order to access TV channels via mobile devices just as in Italy and probably in Finland. In the current context of scarcity of frequencies, the CSA will assign frequencies for broadcasters in the beginning. There should be a non-exclusive agreement between service distributors and content providers. Such agreement has to be equitable and non-discriminatory. The complementary of networks should leverage the efficiency of frequencies. It will be a good idea to combine DVB-H based mobile broadcasting with unicast streaming for smaller audiences. The technical, economic and cultural stakes in Mobile TV requires all players to become active, especially as regards the assignment of frequencies, standards and the regulatory environment.

Jane E. Mago, Senior Vice President & General Councel, NAB, USA, [www.nab.org], gave an inspired presentation on

Convergence - The Digital Transition within the United States

The NAB (National Association of Broadcasters) represents more than 8,300 television and radio stations within the U.S. The business model is to provide free programming (both audio and TV) to the public by relying on the advertising model as primary means of revenue.

A very significant aspect of convergence for broadcasters is the change from analogue to digital technology – both on the radio and the TV side. The U.S. legislator set the date for the end of analogue television broadcasting as 17 February 2009. There are currently, however, 1,592 TV stations within the U.S. that are broadcasting in digital, there are some 1,722

channels of digital programming that is send out to the public every day, and there are more than 600 of those digital TV stations that are sending out multiple streams of programming over their digital signal. The equipment within the U.S. is selling rapidly. As of next March, it will be required that all TV sets with more than 13 inches in picture size must have a digital TV tuner. Meeting this deadline is going to be a significant challenge for the broadcasters in the U.S. They must convert all of the antenna and move the channels on which they are broadcasting. This is particularly challenging in the northern climate of the country where are short seasons for the engineers and technologists to be able to climb the towers and move the transmitters – this can not be done in the Winter time. Furthermore, there are only two companies in the U.S. that have the capabilities to do some of these transitions. As there are still some interference problems, there is also the challenge to deal with border coordination – both on the Canadian and Mexican border. And of course, the cost to the stations is a very substantial challenge for the broadcasters.

What are the benefits to the public that comes of this transition? In the digital TV area it is going to be a reclaiming of spectrum that is currently being used for digital programming. This will enable more uses – for public safety services, or broadband services to continue the digital revolution. There is the possibility of more free programming being available to the audiences and there is the improved quality of the picture.

Broadcasters are committed to making this transition happen. The NAB is working with the U.S. Government. The National Telecommunications Information Agency is charged with helping to have a programme to make this conversion. Consumers will continue to get free-over-the-air television. The analogue sets will have some means of receiving the signals. The NAB itself is conducting an education programme involving electronic manufactures, cable systems, public TV and citizens groups to educate the public. Three full-time employees of NAB are dedicated to make that project work.

The radio market / audio services are also going digital and that will be a continuing process in the U.S. This will not be something that requires a second channel as the digital TV conversion did. Broadcasters will be able to convert on channel but they will also provide much better quality and more flexible programming. However, there is a need for new equipment and this is part of the challenge the U.S. is currently dealing with. Broadcasters will need to make this transition to remain competitive with some of the other services that have developed, including the delivery of radio services over the satellite programming or the Internet services.

With this change to digital combined with the continued growth of Internet and the concept of sharing, new challenges to broadcasters and content providers develop – in particular regarding Intellectual Property Protection. Protections for broadcast signals is one of the things that might help. In the U.S., the debate continues about the technological protection in the form of a broadcast flag that would be placed in the TV programming to limit copying. There is a similar programme to see if there could be an audio flag for radio programming, but this is not as well developed as the broadcast flag and needs more time. As we are moving forward with the digital conversion and the different types of usage, it is still important to focus on the very real value that the broadcasting services provide and to protect and to encourage the further deployment of such services.

The moderator of the 2nd part of the session, **Alfredo M. Ronchi, Secretary of the Medici Framework, Politecnico di Milano**, Italy, emphasized that this part of the session is dedicated to concrete examples and case studies related to content and convergence and conducted the session with ease.

Ranjit Makkuni, President of the Sacred World Foundation, India, presented a fascinating project settled at the intersection of art, design and technology:

Building Bridges Between Technological and Traditional Cultures

The Sacred World Research Laboratory is a state-of-the-art research and design think-tank whose projects explore innovation created by building bridges between technological and traditional cultures. In an era of accelerating change, the laboratory works with the world's spiritual cultures to develop new forms of media and documentation so that perennial wisdom can be captured and made accessible to all. The documentation of traditional cultures is not just a passive exercise of "scanning-in culture". Instead, the laboratory's work has shown and continues to show that engagement with culture provokes a fundamental re-questioning of the form of computer user interfaces; hence, such engagement with culture is a valuable process in order to spark off technological innovation. The laboratory's projects show that developing nations can become centres of innovation, create their own insights into interface design, culturally-rooted computing and culture-conscious product design.

One of the projects realized by the Sacred World Research Laboratory is the Eternal Gandhi Multimedia Museum built at the site were Ghandi was assassinated. The museum shows the historical dimension of Ghandi but also how Ghandi inspired new product design and computing paradigms. The museum tries to represent Ghandi through modern media.

The technology developed does not "merely scan" Gandhian images; rather it interprets Gandhian vision in newer product design. The exhibits interpret Gandhian forms and values. For example, the Gandhian commitment to hand-based production and production through symbolic relationship with nature. This is interpreted in the context of modern culture-conscious design. Most of learning happens through the hands. Hands are not just a tool to click buttons, but a site of intelligence and healing.

The project presents a language of physical interface actions. It is derived from classical symbols of the spinning wheel, turning of the prayer wheels, touching symbolic pillars, spinning wheels, the act of hands touching sacred objects, collaboratively constructed quilts, sacred chanting in the collective group, the satsanga, the touching and rotating of prayer beads. These tradition-based interactions inspire a rich panorama of tactile interfaces that allow people to access the multimedia imagery of Gandhi.

The works of scholars, artists, craftsmen, sculptors, carpenters, wood carvers, electronic designers, digital artists, animators are like a dedicated prayer towards a remembrance of the Gandhian vision. It is like a collective 'Likita Japa', the endless recollection of the Divine through repetition of the written mantra. Each object in the exhibit, whether a bit of light, a bit map on screen, an animation, a circuit, a handcrafted object is a living prayer from all of us! Through the prayer we reaffirm our commitment to the dignity of the hands, the healing of divides, and the leveraging of village creativity and diversity against a backdrop of homogenisation.

Fred Deutsch, Founder of VOXONIC INC., USA, [www.voxonic.com], presented an incredible application enabling to

Recreate Your Voice in Any Language

Voxonic is a technology that has the ability to recreate voices in any language. Voxonic does not do the translation of the language but sits on top of speech and does the translation of the voice. Voxonic is a technology enabling to take a print of any person's voice and then imposes the person's vocal pattern on the content that is delivered. The software can deliver any text to fluid speech in any language and in any voice. All that is needed is a 10 minutes clean voice sample of a person, which includes the tones they make, the way they pronounce words, and all the sounds they make within the language they speak.

The technology sits on top of oral speech or on top of speech that is produced by a Text-To-Speech engine. The technology has initially been invented for the movie world: Fred Deutsch's creation of Voxonic stemmed from his frustration with movies dubbed in foreign languages. While on vacation in France, and intent on enjoying an American movie, Fred Deutsch became acutely aware that the dubbed voices sounded nothing like the familiar voices of the movies' well known actors. The company made some demos for Warner Brothers with amazing results but the commercialisation of the Voxonic technology in the movie industry finally failed due to serious finance-driven road blocks.

Thus, Voxonic started working with the music industry to take American rappers, translate their lyrics, and transform their voices into a foreign language to give them more exposure in other parts of the world. Rap has a message and when speaking to the people in the Rap world, they say Rap is poetry. But, poetry is only really valuable when you can understand the words. Voxonic has taken Rap-songs and allows the audience to switch between different languages, e.g. English-French, English-German, English-Chinese etc., with seamless transition from one to the next., in the voice of the Rapper. Furthermore, a well-known record label hired Voxonic, Inc. to do voice tones and customized voicemail greetings for people. The phone can recognise who is calling and a customized message in a celebrity's voice will be delivered with the name of the person that is calling.

Voxonic is currently developing its own manual mark-up Text-To-Speech engine. People can type words into the computer and it will come out as a desired person's voice and not a generic computer voice. Corporate communications is also a big application: For Berlitz, Voxonic has created a 15-minute electronic press kit in different language explaining to Berlitz's clients around the world what they do and how they can help them more effectively.

Vincent Puig, Deputy Director of the Cultural Development Dpt. Centre Pompidou, France, introduced the impressive video annotation software

Lignes de Temps

The Web 2.0 enables users to create rich content. However, there is still a lot of research needed in the field of metadata and the Semantic Web. Hypermedia documentation engineering is still a big issue, especially for large cultural institutions such as the Centre Pompidou. Multi-modality and human machine interfaces other than just "mouse and key" systems are important topics – also in combination with the Web 2.0. Other important issues are mobility and ubiquitous computing, ambient intelligence and nanotechnologies. These

are only some of the topics the Centre Pompidou Research and Innovation Institute is dealing with.

From 24 January to 3 April 2007, the Centre Pompidou is presenting an exhibition called "Erice – Kiarostam: Correspondences" suggesting travels through the films of these two directors, exploring relations between films, photos and paintings and presenting "video correspondences" exchanged between the two directors. Although the exhibition has been previously presented in Barcelona and Madrid, the Paris' edition features a radically new experimentation performed by the newly founded Centre Pompidou Research and Innovation Institute. The experimented set-up is built around a new film annotation software called Lignes de temps (Timelines) providing a graphical representation which immediately reveals the inner "rhythm" of the movies, be it based on technical features (shot, sequence, camera moves, audio elements,...) or on narrative features (characters, landscapes, flash-backs,...). Furthermore, Lignes de Temps may be superimposed to reveal co-occurrences, repetitions or mirror effects in one film or across several ones. Finally, users may write or record comments and synchronize them at a precise time code.

For the exhibition, visitors are equipped with PDA and encouraged to write and record notes all along their visit. At the end of the exhibition, a dedicated place called "Espace critique" (a room for criticism) will provide eight computers where the comments recorded on the PDA may be reworked and synchronized with the films. Visitors may then upload their film enrichments onto the exhibition's website in order to improve them and to share them with others. The Centre Pompidou Research and Innovation Institute's belief is that contrarily to existing blogs or wikis, using shared "instruments for critic" should support the advent of art practitioners (and not users) and new communities of "amateurs" (in the noble sense it had for instance at the French Royal Academy in the 18th century).

After presenting this first experimentation, the Centre Pompidou Research and Innovation Institute will introduce its next research project called Cine Lab (2007-2008), supported by the French Ministries of Research and Culture, which aims to push further the collaborative framework in the field of education, for large film archives and in conjunction with DVD and VoD distribution since annotations produced and shared by amateurs remain independent of the unmodified film itself.

Aviva Silver, Head of Unit of the MEDIA Programme and Media Literacy, DG Information Society and Media, EC, [http://europa.eu.int/information_society/index_en.htm], outlined with great enthusiasm and energy the new

Media 2007 Programme of the European Commission

The Media Programme is a programme that is concerned almost exclusively with a sector that biggest problem is obscurity – not piracy: the European cinema. The new programme Media 2007 will enter into force in January next year and has a total budget of 755 million Euros for 7 years for 31 countries. The EC tries to make the operators in the cinema sector take account of the European dimension. The 3 main objectives of the Media 2007 programme are cultural diversity and heritage, transnational circulation and competitiveness – with competitiveness being the founding stone of the programme. One of the big changes in terms of the new programme are the horizontal priorities, e.g., to support and encourage the take-up of new digital technologies. Even if digital technology represents an opportunity for the cinema, it is also an enormous challenge.

The programme is complementary to the Member States support. 90% of the money of the Member States goes to production. The EC funding goes to pre-production, which is training and development (mainly of scripts), and to the stages after production, that is distribution, promotion and pilot projects. Promoting digital distribution represents an important aspect of EC funding. The EC accompanies the market by trying to offer incentives for the take-up digital distribution.

The main new features of the Media programme include digital technologies. It also includes certain simplifications in order to facilitate SME participation in the programme. One of the aims of Media 2007 is to reinforce the economic structures in this sector – a sector which is very fragile and where investment is a real problem. Cinemas today are mainly equipped with 35mm projectors. They were bought at the cost of about 40,000 Euros and will last 20-30 years. With digital projection, a projector will cost between 80,000-100,000 Euros and will need replacing in 5 years time. Therefore, one of the real problems of the sector is, even if the technology is available, to find the business model to bring it into the cinemas and to change the existing production structure. TV is a different structure and a different set up because, apart from the last link to the consumer in Europe, production and post-production is almost entirely digital. For cinema this is not the case.

The market is fragmented and based on national or linguistic areas. It is comprised of very small operators and without the Member States support schemes it is questionable whether European cinemas in terms of national productions would still exist. Very few of those national markets have a majority share of own productions. There is also a problem in terms of standards in digital cinema. The new programme aims to tackle some of those problems, for instance by looking at distribution online. There will be new schemes under Media 2007 that looks to encourage VoD offers, to how to achieve digitisation of both cinema and television works and to carry forward the work on digital projection in cinema theatres. The EC is also in discussions with the European Investment Bank with a view to exploring economic models for digitising European cinemas.

Over the last years there has been an important debate on standards and questions about the impact on the 30,000 cinema screens that exist in Europe. One of the other important topics is the question of reinforcing economic structures.

Digital projection is already done through Europe's cinema networks and it is clear that for digital screenings to succeed there is a need for at least two projectors: A film does not finish after it has been shown in a big cinema; it needs to move to a smaller cinema to make it economically viable. – this means, two digital projectors for each cinema complex. Moreover, technology is changing: Pilot projects are the EC's way of testing new technologies and seeing what their commercial applications could be. In this respect the EC has supported a number of different projects: for example Midas, a project for interoperability of archives, Reelport, a network of cinema festivals, and CinemaNet Europe, a digital distribution and exhibition network.

Mario Taddei, Technical Director, and Massimiliano Lisa, CEO of Leonardo3 Srl, Italy, gave a brilliant and fascinating presentation of

The Digital Codex Atlanticus

Leonardo3 (L3) is an innovative media company based in Milan. Its mission is to study, interpret and make artistic and scientific heritage available and enjoyable to the general public through the use of innovative techniques. Particular importance is placed on three-dimensional reconstructions.

Presently, L3's research laboratories and all its production work (physical and three-dimensional models, books, multi-media aids, documentaries, exhibitions and museums) are dedicated to Leonardo da Vinci's work and the early results have shown a wide global interest. L3 made the first working prototype in the world of Leonardo's automobile, as well as virtual and physical interpretations of around 50 ingenious machines devised by da Vinci, that have never before been brought to life. L3 is currently creating three digital museums dedicated to Leonardo da Vinci's work: one in Milan, another in Chicago, and a third one in Tokyo.

As part of the efforts to promote the work of da Vinci, L3 created a digital version of the Codex Atlanticus. Based on the original manuscripts of da Vinci's most interesting work, L3 offers a new, exclusive and high-resolution means of interacting with Leonardo. For the first time in history the Codex Atlanticus is available for the enjoyment of the general public: 3D models of the machines spring from the images in the pages, allowing the viewer the opportunity to interact. In this way, thanks to the virtual models, it is possible to understand how the designs actually work. The original manuscripts are the historic proof of Leonardo's work but, they are of interest mainly to academic experts, whereas the general public will be fascinated by the 3D reconstructions.

L3 studies the past and creates innovative means of communication to explain and stimulate interest in it. That is why L3 combines physical models, three-dimensional reconstructions and interactive software. In a nutshell, the company believes that edutainment is the best means to understand the past and to meet the future.

Leonardo da Vinci's designs are unquestionably extraordinary in themselves. But it is this modern way of interpreting and popularising them that makes them truly incredible. For the first time in 500 years it is possible to grasp the true significance of these wonderful projects.

Evolving Issues In IP Telecom Regulation & Net Governance

The session's **moderator, Andrew Lipman, Partner and Head of Telecom Group at Bingham McCutchen**, USA, welcomed the participants and expressed his delight about the quality of the panellists enabling the session to really get into issues beyond strict enforcement and regulatory definitions and much more into how regulatory can be the strategic planning and marketing of telecommunications companies. Andrew Lipman dispensed with his presentation in order to let more time for questions and answers.

The **chair** of this session, **Dorothy Attwood, Senior Vice President - Regulatory Planning and Policy at AT&T, INC**., USA, [www.att.com], gave an attention-grabbing and captivating outlook on

The New AT&T

AT&T is a communications company with all of the facets of the communications industry. AT&T is the number one wireless provider through its 60 percent ownership of Cingular, the number one DSL provider and – once the merger with Bell will be completed – also the number one broadband provider in the U.S. AT&T has one of the world's most powerful and advanced IP "backbone" networks with 525,000 fiber-route miles. The company has 30 Internet data centers on four continents, offers 24/7 customer service and has employees in every U.S. state and in more than 60 countries.

AT&T's new IP-initiative "U-verse" will bring video, mobility, voice capabilities and service featuresl into one platform. The company announced plans to reach 18 million customers by 2009 and indents to be in 10 to 15 markets by the end of year. The key of the success of U-verse is recognizing that IP brings the integration. AT&T will make IP networks function together across three screens: the TV, the PC and the cell phone ("three screens strategy").

As regards policy implications, the current regulatory framework needs to be re-formulated – regulating future technologies based on yesterday's communications landscape does not work. There is a need for active oversight, not for active intervention: The market works and monopolies are not the norm; there is a need for a broader view and a lighter touch. Fundamental to that is a focus on bad actors and not on bad networks. Moreover, investment, innovation and competition define a consumer driven marketplace and regulation must foster growth in these areas. There needs to be an active oversight over the market, whether that is FTC or FCC jurisdiction, but not regulation.

Net Neutrality is an elusive concept but also one of the most frustrating discussions in the U.S. Initial concerns were about blocking or degrading customer access to Internet web sites. The debate then shifted to one that deals with the network providers' ability to enhance their broadband networks and under what terms those enhancements should be made available to others. AT&T wants to preserve Internet freedom and allow the Internet to develop through commercial agreements, not government regulation. The company has demonstrated commitment to enhancing and expanding Internet access. Customers demand a robust broadband Internet access product; if they do not get it they will look to other competitors. There is no regulatory vacuum today – the FCC oversight already exists and the Broadband Policy Statement ensures an active monitoring of the marketplace.

To conclude, there is a need for network flexibility, not neutrality: Performance optimisation on the Internet already exists and Internet applications are evolving and will continue to evolve (e.g., more websites streaming video and audio; end users are no longer just content consumers, but content producers; household appliances, not just PCs, will be connected). A loss of flexibility will lead to less broadband investment from existing providers, less broadband investment from new providers, and finally, less customer choice.

The following **Q&A** of the presentation referred to the question about what should be the baseline for an incumbent carrier in terms of how it would be regulated differently from non-incumbent carriers. Dorothy Attwood stressed that incumbent carriers have unique obligations when it comes to what they where incumbent in – in particular regarding universal services and commitments to serve. AT&T's legacy of its incumbency are traditional voice services and the company continues to serve its entire footprint, including rural areas. That is the contract in a world that is driven solely by commercial interest. No one would serve some of these very high cost areas. The question becomes when moving into the new emerging market and when looking at where competition is flourishing from alternative providers. Europe has an important approach in that there is a study of the market before that there is regulation and this is something important to look at in terms of how to move forward with IP.

Jonathan Askin, General Counsel to PULVER.COM, USA, [www.pulvermedia.com], gave an interesting insight in

The Pulver Order

On 12 February 2004, the FCC released the so-called "Pulver Order" declaring free world dialup's end-to-end IP communications as an unregulated interstate information service. The Pulver Order might have been the first positive regulatory statement of any government in the world about the unregulated nature of Internet communications. However, not long after, regulators around the world and in the U.S. in particular started taking a critical look at this unregulated world of Internet communications. The attitude was: if it looks like a duck and walks like a duck it will be regulated like a duck.

Today, the U.S. goes further and further along the path of deregulating the traditional telecommunication transmission and Internet access and broadband providers could think that governments have felt compelled to place the regulation somewhere else. Instead, they started regulating the Internet voice, video, and audio space.

The Pulver Order for the most part was very positive as it said that Internet voice communication that does not touch the Public Switched Telephone Network should be unregulated. It said specifically that the U.S. States and municipalities do not have the right to regulate Internet communications. However, there has been something disturbing with the Pulver Order afterwards: It says that Internet voice communication is a global phenomena and not subject to state or municipal regulation but at the same time the FCC was empowered to regulate this global phenomenon that can originate and terminate anywhere on the globe.

Today, countries around the globe are trying to find an answer to the question whether to regulate the telecommunications transmission service or the Internet application. There will be more and more of a divide between those countries that determine to regulate the Internet based application as opposed to the telecomm transmission facility. Government works best where it regulates the facility. The transmission facilities are within its physical jurisdiction and not the Internet based applications that could be transmitted from anywhere to anywhere. There was a U.S. based company called “Free World Dialogue” that competed with Skype that is based in Luxembourg. Free World Dialogue was submitted to U.S. domestic social and economic obligations and as a result the company could not act at a level playing field with a foreign country. The company finally ended up selling most of its interconnected voice services.

Today, solely the Internet video space remains largely unregulated although regulators are starting to talk about regulating Internet based video applications in the same manner as broadcasting.

The presentation’s **Q&A** part addressed the question whether the wave of deregulation involves more and more regulation under the auspices of consumer protection. Jonathan Askin supposed that regulators are hiding behind the concept of consumer protection in a world where regulators do no longer regulate the telecom facility even if this is in their jurisdiction but put rules and obligations on the disembodied Internet application.

The second question addressed the fact that some incumbents, such as BT, are separating their network facilities from IP-applications. Jonathan Askin considered BT as the posterchild of what a communications company in the future should be. The fact that they were compelled to disconnect their access layer from their applications makes BT the greatest proponent for the unregulated nature of Internet applications in the world.

Ahmed Khaouja, Director of Competition and Follow-up of Operators, ANRT, Morocco, presented his valuable experience in

Telecommunications Regulation in the Era of Convergence - New Challenges for Regulators

IP is a new paradigm and challenges regulators all over the world. The new configuration of telecommunications is characterized by the convergence of voice, data and multimedia, the diversification of services and broadband applications, the absence of barriers between the copper network and the others networks and between fixed and mobile services, as well as the impossibility of dissociating telecommunications of communication and information technologies. Convergence results in the appearance of multiservices networks and intelligent terminals – while in the past the network was equivalent to the supply of only one service with the intelligence located in the switches.

In the light of this new configuration of telecommunications, Morocco launched a review of its legal framework in 2004 to follow technological evolution – and particularly convergence: The notion of universal services was expanded to cover not only basic telecommunications but also the service Internet with the overall goal to promote ICT in Morocco. For 2005 and 2006, several universal service’s projects covering 1,226 sites in telecommunications networks (thereof 431 Internet locations) have been adopted.

Works are in progress to launch a call for tender to select new universal services' operators. The objective of this call is the preparation of a programme to motivate the existing operators to deploy ICT all over the Moroccan territory in order to reach an almost 100% coverage within a period of five years – knowing that the number of sites considered as white zones is roughly 9,000, what corresponds to 6-7% of the total population.

Within the framework of this new law and in line with the general orientation of the Government, the Moroccan Telecommunications Regulatory Authority ANRT granted in 2005 two "new generation" licences with the major innovation of technological neutrality: Each operator can deploy the technologies he want – on condition of the availability of the frequencies. One of these two licences was grated to offer restricted mobility. In July 2006, ANRT granted three 3G licences for using IMT-2000 technology.

Further measures concluded the process of regulation within the framework of convergence: A decision on number portability will enter into force for mobile networks in January 2007 and for fixed networks in March 2007. Furthermore, partial unbundling of the local loop is planned for January 2007; the total unbundling is planned for July 2008. Relevant markets have been defined and operators with significant market power identified.

Regulators should not slow down the process of technological evolution and therefore should adopt a flexible process of regulation. Furthermore, regulators should not become a barrier for technological and commercial innovation. They should adopt an ex-ante policy to prepare the field and to support competition and an ex-post policy to guarantee fairness of the market and consumer protection.

The first question raised during the **Q&A** part of the presentation was about how an entity like Skype, that does not really respect geographical boundaries, would be regulated in Morocco? Ahmed Khaouja explained that the Moroccan regulator does not intervene regarding the use of Skype or VoIP for private use or in cyber cafés.

The second question concerned the release of 3G licenses. What would be the top principles that the ANRT relied on in terms of how to regulate those type of competitive carriers? As stressed by Mr Khaouja, Morocco has realised a benchmark to see how other countries put in place the process of releasing 3G licenses. One of the most important aspects is the scarcity of frequencies and just as other countries, such as France or Italy, Morocco created a fund for the reallocation of the frequency spectrum. Morocco is currently in the phase of buying frequencies. Another important issue is the migration of users from 2G to 3G. The decision on mobile number portability will allow users to switch from one to the other without changing their phone number.

The third question was about how Morocco is encouraging universal service. Ahmed Khaouja pointed to the fact that in 2005/2006 the ANRT has consulted operators to ask for concrete projects to reduce the digital divide. Following to this consultation, there has been a number of projects subsidised by the Moroccan Government. Furthermore, operators are obliged to contribute with 2% of their turnover to a fund for universal service. On 15 September 2005, the government adopted a programme called GENIE that aims at equipping all primary and secondary schools with multimedia rooms and Internet connection by 2008. 9,000 schools are concerned and will be equipped with a total of 100,000 computers. The budget amounts to 100 million Euros, financed to a large extent by the fund assigned to universal services.

L. Marie Guillory, Guillory & Hjort, PLLC, Washington, D.C., USA, presented with great devotion the topic of

Access to Multi-Channel Video Programming by Network Providers in Rural Areas

Digital convergence brings public benefits, such as an improved and expanded array of services, e.g., HDTV as a result of the convergence to digital. Presumably it also brings lower prices for consumers – competitive access to high speed Internet should provide lower prices and a maximized use of resources and broadband infrastructure. Furthermore, there should be the benefit of the advanced transition to the Information Society because of the variety of applications that can be provided over broadband.

Broadband infrastructure deployment is the engine that drives convergence. However, there is a lot of rhetoric about the benefits of public policy supporting broadband deployment in the U.S. Broadband infrastructure deployment is costly, particularly in more scarcely populated areas like rural America. It is expensive to deploy broadband facilities, in particular if there are 26 miles before getting to the customer. At the same time, if there is a policy of universal access and universal deployment of broadband, there should be some way of achieving that. Broadband infrastructure providers must sell more than just a pipe. In the absence of some kind of support structure for deployment of broadband, selling the pipe alone will not cut it.

What is required is the sale of applications on those broadband facilities in sparsely populated areas. Video programming must be available to non-traditional video providers, the IPTV providers like the rural telephone companies. Americans spend more time viewing media than any other activity. Thus, there is a rich resource of revenues when getting TV on the broadband pipe. High speed Internet access is competitive. Telephony, CATV and other providers get the benefits of a hands off approach to regulation. But when it comes to video programming and access to video programming by the broadband infrastructures who have not been the traditional programming providers, there is not the same set of regulations that allows those carriers to gain access to programming as the one allowing content providers to get on the pipe. Laws and regulations do not recognize that access to some programming services are essential to competitive market.

A network provider that wants to put multi-channel video programming on its facilities so that it can make the business case and continue to provide broadband access and derive revenues for it needs to include certain kinds of TV programming in its offer – otherwise people will not buy it. These “must have” or “essential” programming can make or break video service providers. The problem for the small broadband infrastructure providers in gaining access is that some of their competitors also are vertically integrated with the programming vendors and gaining access to their programming as a competitor is difficult. There is certain programming that is essential in order to be successful in the multi-channel video programming world. Laws put no positive burden on programmers and distributors must file complaints to remedy anticompetitive and discriminatory conduct. There should be a strong policy statement sending out the message that essential programming has to be made available.

To promote the digital convergence through broadband deployment, broadband deployment has to be made a reality and not be kept in the myth category. It is necessary to ensure that there is a level playing field for small infrastructure providers and video service distributors, so that they gain access to content on the same basis as the vendors who are vertically integrated with the content providers and the distributors. The services and benefits of convergence should benefit all consumers.

The first question of the **Q&A** part of the presentation was about what programming – apart from sports channels – could be defined as being essential. Marie Guillory stressed that a programming is essential if everybody wants it and would not buy a service unless these channels are not included in the package (e.g., HBO, some Disney channels, …).

Then, the question raised whether vertically integrated entities, such as Time Warner, should not only make the programming available but should make it available at the same price and under the same terms and conditions that they make it available to their affiliates. M. Guillory stressed that one should not go so far because there might be some reasons why the price is different. Although in fact, rural providers pay more and therefore their customers pay more for cable services because the per subscriber cost are higher. The price should not be the same but certainly the terms of access should be the same or even better. The last question referred to what the national government should do to encourage broadband penetration in rural areas. Marie Guillory explained that the extension of universal services to broadband deployment is certainly part of this. However, the problem is that the bill would be so high if there was a universal service fund for broadband deployment that such system just would not work. But policies like making sure that the network providers have access to programming and are able to sell on their facilities whatever brings revenues would be one of the things the government should do.

Bernard Benhamou, Head of Forecasting and Internet Governance for ADAE, Office of the Prime Minister, France, presented

Internet Governance after the WSIS - A French Perspective

Interestingly, the WSIS negotiations mainly focussed on the critical infrastructure of the Internet and the governance of the DNS. The originality of the European proposal was that the EU25 agreed on some principles that – once adopted – were constraining their action for the future, particularly three of them: interoperability, openness, and the end-to-end principle. It has to be noted, that there have been vivid debates on the question whether the end-to end principle is closely or vaguely related to the principle of Net Neutrality.

The French delegation was defending a specific view on the architecture of the Internet that was profoundly different from current existing networks, especially for France and its experience with the centralised network Minitel. The introduction of the notion of preserving the original architectural principle of the Internet was a way to show that Europe is not trying to over-regulate the Internet but trying to respect the ideas of the original architecture of the Internet.

This has been the philosophy when calling for a coordinated action – and the wording that has been introduced by the Tunis agenda was “enhanced cooperation between governments”. At the same time it was considered as important not to create roadblocks for innovation or mechanisms that can slow down decision making regarding Internet technologies. Preserving the architecture of the Internet was considered as essential because this architecture has created the existing dynamics of the Internet, the acceleration in the emergence of new services and new companies as well as the Internet’s global growth and technologies. Replacing this with an old vision of a centralised network would have rather the opposite effect. This is the reason why Europe called for a structural separation between services and infrastructure.

France advocated a system where the three layers of the Internet – infrastructure, applications and content – can compete without any possibility of one stakeholder being able to act on a layer that is not its own (meaning infrastructures not being able to act on applications, applications not being able to act on content etc.). The Internet is not a bunch of tubes – it is much more and has a tremendous effect on disseminating knowledge, culture and innovation. If we do not protect these characteristics of the Internet, we take the risk of seeing a kind of balkanisation of the Internet with an Internet being fragmented into many different networks not being able to interconnect and with ideas and opinions not being able to be shared. This vision has been reaffirmed by the European Commissioner Viviane Reding in Athens: The vision of the EU countries is to protect that idea of a democratic Internet, including democratic governance of the Internet. This principle of neutrality that has been at the core of the European proposal, but has not been supported by the U.S. state departments.

When talking about neutrality, one has also to talk about one of the latest phenomena of the Internet: Wikipedia. Today, Wikepedia has become so large that it almost reached the traffic of ebay. Therefore, Wikepedia has an important need for bandwidth but as a structure with only 3 full-time employees, the it can not afford to pay for this. Consequently, it would be obliged to ask Google or Yahoo to pay for the bandwidth – with consequences on the editorial content. For instance, Google envisaged to put sponsored links inside Wikipedia. Until now, Wikipedia has succeeded in not having such constraints, but if they had to pay the local loop bandwidth as it has been proposed by the U.S., they would have immediately disappeared as independent. It is important to protect the ability of new comers to become large players and of new ideas to become immediately implemented on a worldwide level.

The question coming up during the **Q&A** part of the presentation was whether the separation of network facilities from applications would not discourage competitive infrastructure. In his answer Bernard Benhamou pointed to the example of France with its very competitive and attractive triple play offers. In France, operators have been able to develop with that kind of unbundling of the ADSL lines. Companies can innovate and invest if they have a differentiation in their product.

Miriam Sapiro, President Summit Strategies International, USA, delivered a great talk on

Governmental Regulation and the Multi-Stakeholder Model

As we look towards 2007, there are two major challenges: One is the need to maintain the momentum towards convergence; the other is to redouble capacity-building efforts to make the benefits of the Information Society available to all people everywhere.

The dramatic growth of the Internet has been supported and facilitated by minimal regulation at both the international and the national levels. Sometimes one can hear calls for a greater UN role in Internet governance issues, such as by establishing a new intergovernmental organization to discuss core international public policy issues or by negotiating some kind of international framework convention on the Internet. The Internet may be new, but communication is not. From societies' earliest days, communication has been central to culture and economic growth. Only today the medium has been changed. It is always tempting to deal with new issues and new challenges by calling for new laws or new organisations. However, there are several reasons against such approach: First, technological innovation and change are too hard to predict. Second, the best way to develop efficient and responsive markets it to support vigorous competition. It is the best way

to encourage investment and efficiency and to secure innovation as well as improved goods and services at competitive prices. Third, many challenges can be addressed by reliance on existing frameworks and rules.

A few examples of existing regimes: There is the WIPO Copyright Treaty, which deals specifically with the digital environment, such as by requiring laws to protect copyrights in computer programs and to prevent circumvention of technological protection measures. There is also, developed by UNCITRAL, a Model Law on e-Commerce that has been very widely adopted. Moreover, there is the recent Council of Europe's Cybercrime Convention, which was ratified by the U.S. It requires countries to establish criminal laws against actions like computer related fraud or the distribution of child pornography. There is also, among other human rights instruments, the International Covenant on Civil and Political Rights. Article 19 provides everyone with the right to freedom of expression, including the right to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print. This language was developed in 1966 but it is equally applicable to the kinds of challenges that we are facing today.

The focus should not be so much on establishing new international rules that could undermine the very dynamism that has made the Internet the huge success that it is today, but on building upon an improved implementation of the existing norms. It is critical to enhance information sharing, especially best practices, and also to broaden international cooperation. These discussions should include all stakeholder groups – governments, the private sector and civil society. All must work together to ensure the good use of the existing regulatory framework and consider new options when there is consensus that gaps exist.

This approach is reflected in the conclusions adopted by Heads of State at the 2005 Tunis Summit on the Information Society. UN members agreed on establishing a new Internet Governance Forum and the first meeting was held last week in Athens. The next meeting will be held next year in Rio. The attraction of the Forum is that everyone is welcome: governments, the private sector, civil society, and the technical and academic communities that are so important to the success of the Internet. Tunis, however, did leave some questions open: It acknowledged the critical role of multi-stakeholder cooperation in addressing Internet issues but it also recognised "Policy authority for Internet-related public policy issues is the sovereign right of States. They have rights and responsibilities for international Internet-related public policy issues." Indeed, some in the European Commission are calling for government-only negotiations on international public policy. But there is no agreement on what is an international public policy issue, and what is not. There is also no agreement on how international public policy should be developed. Many governments still adhere to a traditional definition of public policy, in which they alone develop and implement it. This may make sense in other fields but less so with respect to the Internet.

Absent a clear need for regulation in an area as dynamic as the Internet, governments should not act at the international or national level without careful consideration. This is particular true with the Internet whose very success is directly attributable to widespread, multi-stakeholder collaboration.

The **Q&A** part of the presentation addressed the question whether there is any role for international bodies on the Internet. Miriam Sapiro suggested that the existing international system appears generally adequate. Some of the regime was specifically developed for Internet questions but great parts of it deal with communication in general and have existed

for many years. We do not know what will come in the future and therefore flexibility to address new challenges is important.
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The second question that came up was whether there is still a purpose for international bodies to get together, to determine principles or recommend actions if they do not propose regulations or laws? Miriam Sapiro emphasized the ongoing need for multi-stakeholder dialogue. Prior to the adoption of the Internet Governance Forum, there had not really been the opportunity for multi-stakeholder dialogue on general issues. It is not more regulation, but better implementation and more collaboration that should be our focus now.

The final question was whether governments should be excluded from the process. Miriam Sapiro stressed that governments are important to this debate and that there are vital areas, where only governments can negotiate on behalf of their citizens. But governments should not regulate just for the sake of regulation. Again, multi-stakeholder discussions and collaboration are vital to the success of the Internet.

Jean-François Soupizet, Head of Unit "International Relations" at the DG Information Society and Media of the EC, [http://europa.eu.int/information_society/index_en.htm], provided in interesting insight in

One Year After Tunis: The Athens' Meeting of the Internet Governance Forum

One year after the agreement in Tunis, the inaugural meeting of the Internet Governance Forum took place from 30 October to 2 November in Athens. Having established for the very first time a real multi-stakeholder dialogue on Internet Governance, the meeting can be considered a success.

The issues on the agenda for IGF 2006 were divided into the four main categories openness, security, diversity and access. As regards openness of the Internet, the key objective of the European Commission is to keep the Internet as an open and censorship-free zone - in line with internationally recognised fundamental rights – where all citizens can communicate freely with each other without needing to seek the permission of anyone else, not least their government.

Regarding the topic of security, the EC stressed the importance of maintaining security and stability of the Internet. There have been vivid discussions whether security is a question that should be addressed exclusively by governments or exclusively by the private sector. The answer might be somewhere in the middle. However, it has become clear that this question has different facets and requires a new multi-stakeholder process. Spam, for instance, is a much more serious issue in developing countries with limited bandwidths than in countries that do not face such limitations.

Furthermore, the meeting clearly showed the importance of diversity in terms of promotion of multilingualism through IDN and local content. Although will be necessary to find the right balance between security and this kind of evolution, it is crucial to address this question in order to avoid fragmentation of the Internet.

Finally, universal access remains one of the major challenges. Today, there are 1 billion people connected to the Internet – at the same time, there are 4.8 billion people without Internet access. The participants agreed on aspects such as competition, the elimination of barriers, transparency, or the elimination of monopolies. In this respect, the Forum has been

a real success - not only because of its 1.500 participants but essentially because it succeeded in making all the different stakeholders feeling co-responsible and providing concrete propositions to the issues discussed.

Although the Internet is a global facility, the importance of more and more aspects with local relevance becomes increasingly obvious. Topics like languages, physical access, relevant local content, or computer literacy have been identified as topics of crucial importance during the Forum. The Internet has to be made accessible to those communities that are far from the centres, that do not necessarily speak English, and that may have specific needs. The process already started and led to a certain number of initiatives in this specific context. However, the second part of the process should now be initiated in terms governmental discussions between the UN Member States.

The first question that raised during the **Q&A** part of the presentation addressed the impression that the temperature has dropped essentially compared to the Tunis Summit and that there is much more common ground among many of the participants. Jean-François Soupizet confirmed that there has been much less polemics and much more useful dialogue and discussions between the participants. Some disagreements remain, but there has been a much better comprehensibility of the challenges discussed than it had been one year ago in Tunis.

There is still a long way to go but most of the actors agree that it will be done slowly but surely. The second question referred to the exact role and outcome going forward from the IGF. Mr Soupizet stressed that it will be a step-by-step process. The EC is taking care to organise within the EU a process that accompanies this evolution. The great interest in this cooperation process is obvious: There has been a large participation in the Athens' meeting; there is an appointment next year in Brazil, and the Governments of India and Egypt already offered to host the 2008 and 2009 IGF meetings. The intention of this collaborative process is not to intervene in the day-to-day management of the internet but to create an framework in which the Internet can evolve, and flourish and be effectively used by the majority of the people.

Theresa Swinehart, Vice President, Global and Strategic Partnerships at ICANN, USA, gave clear and concise talk on

A Proven Model for the Technical Coordination of the Internet

ICANN is responsible for the coordination of the Internet's unique identifier systems, which includes the IP addressing system, the domain name system and the postal system of the Internet space. ICANN is an internationally organized non-profit organisation and it is responsible for IP-addressing, space allocation, protocol identifier assignments, top level domain space, and root server system management functions.

The organization is guided by four founding principles: i) to preserve operations stability and security, ii) to promote competition and choice of registrants, iii) to achieve broad representation from Internet communities and iv) to develop policies through a bottom-up consensus based model.

ICANN has representations from all different sectors and governments are heavily involved. The challenging point in the current debate is what is the appropriate role of governments and how to ensure that the public policy issues are addressed.

Some of the emerging areas ICANN is working on is the allocation of IPv6 addressing space to ensure that everybody in the entire world has enough addressing space to keep the Internet functioning. ICANN is also looking at the new policies for TLD and what kind of policies should exist in order to ensure that each representative group that has a concern in that space will be addressed. ICANN is looking at what is the appropriate role of governments in this multi-stakeholder structure, in particular after the WSIS process. Another issue ICANN is looking at is multi-linguism, but not at the content layer. The geographic extension of the Internet has highlighted the need for multilingual content. At the same time it is important to ensure that people can get access to the content. There are localised solutions in order to get to the content, but there is also a strong interest that the character sets in the domain system reflect the language of the local culture, whether it is Cyrillic, Chinese or Arabic characters. Furthermore, ICANN is doing a lot of work on resolvability and interoperability.

The Athens' meeting of the IGF allowed for ongoing dialogue and improved understanding, including reflections on what are the things that one can do better, how one could get information better and create awareness better, and what issues have not been reflected in trying to reach consensus in this multi-stakeholder model.

With regards to the technical coordination function, there has always been the argument "it works so we should leave it alone. The argument should actually be "it works and let's figure out ways how it works better".

The first question of the **Q&A** part of the presentation referred to what is supposed to happen in Rio. Theresa Swinehart emphasised that there is an interest of addressing some of the topic areas that have been discussed in Athens in greater detail. One of the topic areas will be access. There is a lot of layers to access and the issue should be looked at from a multitude of standpoints. Another topic area will be ICT and development. The participation of developing countries in the Athens' meeting was still far too low.

The second question that came up referred to whether ICANN should separate itself form the US government and put itself under the auspices of the UN? Theresa Swinehart explained why ICANN should not go to the UN. The relationship with the US Department of Commerce is transitional. Both reached a good relationship in September and this is a signal that ICANN is proceeding to move the organisation forward in the private sector. The decision in September to reach a joint partnership agreement and what that reflects being ICANN as a organization reporting to the world community is a very strong demonstration of the belief that the multi-stakeholder model is going in the right direction. How the role of governments is addressed is something that needs to be figured out. However, it would not be appropriate to put it under the UN system.

Sébastien Bachollet, President of ISOC, France, briefly outlined some interesting

Reflections on IGF Athens 2006

Some comments should be added on the reflections on the recent inaugural meeting of the IGF in Athens: There have been less tensions between the participants, but the reason for this might simply have been that there were no decisions to take at the end of the meeting. In this context, the organisation of ICANN in different constituencies might be much more

interesting to look at than the traditional separation in government, private sector and civil society.

During the Athens' meeting, one could get the impression that everyone brought their own dish and ate what their brought, without tasting the dish of the neighbour. There have been too few efforts to progress towards a common position. There should be a real search for consensus, as happening for instance in the field standardisation, enabling the individual positions to evolve.

Just after the Athens' meeting, the ITU Plenipotentiary Conference will be held in November 2006 in Antalya, Turkey. Just after that, the next ICANN meeting will be organised in December in São Paulo, Brazil. With regard to the different facets of Internet governance and given all the diverging opinions, it might be interesting to come together again to draw the balance sheet of these three meetings.

The Internet Society (ISOC) was created in 1992 and is a professional membership society with more than 100 organization and over 20,000 individual members in over 180 countries. It provides leadership in addressing issues that confront the future of the Internet, and is the organization home for the groups responsible for Internet infrastructure standards, including the Internet Engineering Task Force and the Internet Architecture Board.

ISOC France, the French "chapter" of ISOC, regularly participates in the organisation of events, such as the annual event Les Rencontres d'Autrans and EGENI. In June 2006, the first EGENI Africa conference has been organized in Marrakech, Morocco.

Today, ISOC France launches an appeal for the organisation of intermediate and preparatory meetings on a European level before the next IGF meeting in Brazil in order to prepare the path towards an Internet for all.

The **Q&A** part of the presentation addressed the question about the three main issues that have been missing in Athens. Sébastien Bachollet explained that the problem was not related to issues missing on the agenda but rather to missing processes and tools for cooperation.

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During the concluding **Q&A** part of this session the question of "what Network Neutrality does mean to you?" was addressed to the panellists. Dorothy Attwood stressed the importance of the principle of openness as well as the need to evolve to a next generation internet. Bernard Benhamou pointed to the numerous ongoing debates on the rejected Net Neutrality Amendment in the U.S. Most of the historical key players of the Internet defend the principle of neutrality as on of its main growth engines. Ahmed Khaouja emphasised that the main interest of the customer is the quality of service. From a regulators point of view, technical neutrality is a good means to foster competition – although it complicates the life of a regulator afterwards. Marie Guillory pointed to a different aspect of neutrality: the fight between the content providers and the network owners. There is an issue of access to the Internet backbone by Infrastructure owners who don't have the leverage to have peering arrangements that the larger providers might have. Thus, network neutrality just transcends the fight between the content and the backbone providers and means that backbone providers as well have the ability to interconnect so that their subscribers can get to the applications that are on the Internet. Miriam Sapiro stressed that the biggest challenge is that most of the people in the world still do not have Internet access. Many of those people are still plagued by even more critical issues like hunger, disease or extreme poverty. It is almost a chicken and egg effect: When facing those kinds of challenges it is very difficult to focus on the Internet issues – while at the same time, if it would theoretically be possible to deal with

the Internet challenges, there would be immediate benefits of the described social-economic conditions. Moreover, she expressed her worries about “Net Neutrality” being a clever term for Net regulation. Jonathan Askin stated that the underlying principle is a noble one people should adhere to. This principle means essentially user empowerment and to make sure that users can maximise and control their own communications, media entertainment experience over the Internet to the full extend possible. Jean-François Soupizet explained that – despite the different opinions on the concept – Net Neutrality represents an opportunity. Senator Pierre Laffitte proposed to look at the lessons learned from the invention and the development of letters: When the Egyptians invented the hieroglyphs, they asked the scribes to keep it a secret, limited to a small elite. In contrast to that, the Greeks popularised writing. The Egypt civilisations disappeared while the Greek civilisation remained. The Internet is such a powerful tool that it has to be made accessible to everyone.

The panellists were than asked about their most important issues 5 years from now. Sébastien Bachollet supposed that it will still be the question of how to provide Internet access for all. Dorothy Attwood assumed that it will be the same problem that companies are facing today: customer execution of services. In the end it is the customer that will dictate what will be successful and not the regulatory environment. Jean-François Soupizet highlighted the aspect of expanding the number of people that have access to the Internet while at the same preserving the Internet’s universal character. Jonathan Askin supposed that as governments around the world start to look critically at Internet delivered applications, we will see the industry, and particularly the application providers, getting together to staying off unnecessary governmental regulation. Industries will bound together and try to come up with industry based solutions in order to demonstrate that they can be good actors without excessive governmental interference. Miriam Sapiro emphasized the importance of pursuing the collaborative approach and to continue to reach solutions in a bottom-up model rather than in a top-down approach. Theresa Swinehart stressed that there is large populations that will be coming online, bringing a different set of values, technologies and content. The question will be whether there will be an interoperable or a fragmented Internet. Bernard Benhamou alluded to the current mutation of the Internet from an Internet of computers towards an Internet of devices, objects, and even things as reception terminals. One of the major challenges in this context is the minimization of the “big-brother” effect. For Marie Guillory, the important issue 5 years from now will be the ubiquity and the affordability of access. Ahmed Khaouja pointed to the risk of being able to address and interconnect everything in the Internet and to control each object or device – while at the same time losing social interaction.

Security & Privacy

As **chair** and **moderator Steven Adler, Program Director, IBM Data Governance Solutions, Tivoli Software IBM CORPORATION,** USA, [www.ibm.com], opened the session with great insight into

Security & Privacy: Data Governance

Security and privacy has become a really hot issue for both private and public sector organisations as people become increasingly data dependent and protecting that information is an increasing challenge.

Data Governance has emerged as a kind of composite topic involving security and privacy but also information management, the general challenge that a lot of organizations face around identifying their data and governing it. People realize that information is the lifeblood of their companies and organizations, societies finding reasonable and measurable ways of governing the use of that information becomes increasingly important.

Governance is the implementation of policy over people. The words policy and people come from a common Greek root “polis”; ancient Greek for city which is an aggregation of people whose very complexity requires governance. If we leave individuals to their own self interests it is at odds with everybody else’s self interest, so we govern them to affect policy.

Companies govern themselves through corporate governance programs or similar goals, trying to balance human self interest with the common good. Of course from a company perspective the desire is to increase revenue or lower costs to reduce risk and increasingly. IT is becoming an engine for growth in many companies which are looking at IT projects from a ROI perspective, at how they govern those projects, and the use of ICT. To govern data effectively requires understanding first and foremost how much is my data worth? Is it a commodity, something that I can trade, sell, what is it contributing to revenue, society and if I could understand what it is worth would I be able to articulate the probability of risk, the liability of holding the data? Could I effectively understand what kinds of controls I should leverage, this is a social and behavioural challenge. A lot of organizations are realising that security is not just about firewalls, intrusion detection and infrastructure but it is about organisational behaviour. More than just a few individuals working on a security team, it requires the participation and the involvement of the entire organization, building a culture of effective data governance.

Some of the challenges that organizations face are semantic. In fact, one of the biggest challenges that many organizations face is what words mean. It is very difficult to follow a policy or understand how it applies to you if you have a totally different definition of what the words in the policy mean. One example is the word “data” itself. It has a very different meaning if you look at a business or IT audience. So you can have people together in a room talking about security and privacy, data and risk but between them they may mean very different things. They may agree on something leave the room thinking that they have reached a common understanding but because of semantic differences they haven’t and these differences mount up in certain companies and exposures.

Data Governance is a very broad set of domains – organisational awareness, stewardship, policy, value creation, risk management, security, privacy and compliance, data quality, data architecture, information lifecycle management, audit and reporting and organizations feel that governing effectively requires the participation of all these groups, collaborating because data is just too valuable a commodity not to collaborate, not to govern effectively.

Robert Flaim, Supervisory Special Agent, Federal Bureau of Investigation (FBI), USA, delivered a captivating talk on

The FBI: Security and Privacy

The Special Technologies and Applications Section has been moved to the Office of Science and Technology which does all of the hardware and software analysis for the Bureau on each particular case whether it be a cyber case, criminal case which could mean white collar crime, child pornography crime so on and so forth.

The FBI has to go through its legal constitution rights to privacy and in particular with regards to cyber investigations, the ECPA (Electronic Communications and Privacy Act) was passed a few years ago and within it are certain provisions that define cyber crime. ECBA is used whenever the FBI has an investigation and needs to get digital evidence to prove its case and there are a lot of different venues and forms and processes to get digital evidence.

Digital evidence is very fleeting, transitory; a lot of companies, Internet service providers IT companies many times do not preserve that evidence. In EU there is the Data Retention Act however the US doesn't have such a law and a lot of times Internet service providers will only maintain the evidence for a very short period of time and the FBI many times has to send a letter to first and foremost preserve the digital data. For Federal grand jury subpoenas it has to go through the Prosecutor's Office, the US Assistant Attorney and on a local level and in Virginia it is the Eastern District.

The FBI cyber division has 56 field offices and each with a cyber crime squad and the bigger offices such as in New York, DC and Los Angeles may even have 2-4 squads because of the area that they cover. The cyber division is about 1,000 people and the FBI has a total of 11,000 agents and 32,000 support personnel.

Child pornography is a big portion of cyber crime, phising, spam, terrorism, fraud, theft of intellectual property which is also big, stalking, sell of contraband, etc. A lot of traditional crimes which used to occur without the use of the Internet have just migrated to the Internet which is basically another form of communication therefore the FBI like anyone else has to develop the expertise to make sure it can handle that. Some of the very cyber specific crimes: DDoS (distributed denial of service), botnets, computer hacking, malicious code, theft of IP, IT hardware and software.

The FBI uses tools that everyone else uses, some of which are databases, the DNS WhoIs, VOIP, encryption and Google, sometimes subpoenas don't cover what we can find there.

A bit of concern of privacy vs. security with the WhoIs ICANN in particular, some think that the public WhoIs should be privatised as it may be divulging too much information, however speed and accuracy in getting the data is key and a lot of these crimes are occurring transnationally.

Laurent Szuskin, Partner, Information and Communication Technologies - Media Group, LATHAM & WATKINS, France, [www.lw.com], sensibly tried to get to the bottom of the question

Security and Privacy: the Odd Couple?

What happens when privacy meets security? The legitimacy of the security purpose has to comply with certain procedural rules.

The European Court of Justice recently annulled an agreement between the EC and the US Homeland Security Department by which the EC and US agreed that passenger name records would be sent to the US to fight against terrorism and monitor the flow of passengers on the basis that the EC did not have the legal grounds to conclude such an agreement. Such issues related to protection of national security for which each Member State has the "national" right to protect, rule or govern the data protection in those fields.

The Court of Justice has authorized the agreement up to September 2006 and there is an interim agreement at the EU level which has been signed to continue exchanging data until November 2007 however the Working Party 29 (a group of EU experts in charge of studying the implementation of the European Directive on Data Protection) has issued an opinion that in the course of the next agreement there must be more protection of data sent to the US.

Sometimes, when privacy meets security, there can be catastrophic consequences if the rules are not followed. The sending of personal data outside the EU cannot be done, even for "legitimate" purposes, if the relevant data protection laws are not complied to. Under EU Member State national laws, it is criminally sanctioned to transfer personal data outside the EU unless you fall under certain exceptions or get certain authorizations and, in all cases, subject to prior formalities with the relevant national personal data authority. The reason is that when you are not established in the EU, you are not subject to the EU Member State laws.

When security meets privacy, of course sometimes it does prevail. Here are a few examples: 1) DRMs - "DADVSI" law, implementing a Copyright Directive, states in essence that technological measures protecting copyrighted contents have to be approved by CNIL if they deal with personal data and related source code has to be registered with the DCSSI French Encryption Department; 2) Internet traffic data: there is a legal provision which states that all personal data must be erased as a principle but must be kept for 1 year for fighting criminal infractions and be remitted to judicial authorities; and 3) although identity theft is generally not punished *per se* under French law, it becomes so when it is in relation to a criminal act.

Thomas Andersson, President at JÖNKÖPING UNIVERSITY, [www.hj.se/eng/] **& President of the Board IKED – International Organisation for Knowledge Economy and Enterprise Development,** Sweden, gave an illuminating speech on

The Global Trust Center

Jönköping University is one of three non-government owned universities which means it has room to manoeuvre in comparison to state universities. It is important for Europe not only to invest more in R&D but also to open up for better specialisation, pluralism and effective niche strategies in the university sector. Exploiting its special advantages, among other

things, Jönköping University is in the process of combining technology and economy in a new center devoted to ICT and Networked Organizations (CENIT).

Other initiatives under way include the upgrading of Global Trust Center (GTC), whose secretariat is based in the south of Sweden but which forms a broad international network of partner institutions under the aegis of an international steering group. The need of global initiatives to address security and trust reflects a number of developments. Among them, the costs of communication have plummeted, with the rise of China and India the world economy is in a process of rebalancing, new sectors are likewise on the rise. The massive revamping of the world economy clearly has to do with the changing role of technology, and the need of matching the extraordinary supply of new information that comes out of the science base with innovative capabilities inspired by the market place. ICT makes it possible to interlink between actors specialized in entirely new ways compared to the past. No single human being can master more than a narrow domain of knowledge making and learning, and we need to greatly enhance our ability to combine and interact between complementary experience and skills. Seed and venture funding present examples of this - we cannot fill the "gap of death" simply by putting up more public money. Enabling the formation of hi-tech spin-offs and the commercialisation of science basically hinge on managing information problems. The task is one of enabling trust and more effective links through truly diversified networks.

Policy needs to take the actors into account and go beyond a piecemeal approach. Firms are seeking to reduce costs and become more efficient. Governments try to improve service delivery, information uptake and reduce costs. Citizens and customers consume more services. However, the fragmented state of the digital world presently means that incompatible and incomplete second-best solutions tend to be developed from a supply-push focus across sectors and countries.

The issue of enabling effective authentication in the digital world, and allow for traceability and verifiability coupled with integrity and privacy for the individual user, is becoming acute. How can digital transactions become more transparent? How can individuals rely on what is going on at the time of "handshake" over the net? Security is a global issue and we have to address it on a global basis. The GTC forms an independent and unique platform to identify and diffuse information on best practice solutions across borders. It aims to serve as an advocate of the integrity of the private individual in the digital world and champions solutions to enable legally valid traceability solutions and underpin third party offering in electronic transactions. At this point in time, we need to build new partnerships and be open to try new avenues in co-operating to identify and diffuse those solutions that are able to facilitate authentication and enhance trust in the digital world

William Sloan Coats, Intellectual Property Partner, WHITE & CASE LLP, USA, [www.whitecase.com], reflected with great wisdom the question of

Digital Rights Management and IP Protection

Privacy began as protection from the government and in the US there is no comprehensive American statute dealing with specific privacy rights problems, it is very piecemeal, random and Common Law courts deal with particular issues however allow corporations to deal with their own privacy issues.

Copy protection is one of the problems which threaten the content industry. They have invented the concept of copy protections which was simple at the start to cover digital transmission of information first with the macrovision colour projection scheme on VHS tapes with digital CSS technology however you always have people who enjoy hacking them and CSS and DCSS have been broken.

Digital Rights management is a different concept, viewed by the entertainment industry as a way to control their content; it protects copyrights in a worldwide scheme. CSS was put together by the Copy Protection Working Group, an industry group that assembled all the major players in the movie industry, electronics and IT industries and found something vaguely acceptable to everyone.

DRM in its current state has not come about with a one-stop solution for all the problems and that will explain some of the privacy issues that become inherent. There has to be containment, marking and somehow you have to create that to work in a way to provide access to the authorized user under certain circumstances would be in the movie industry limited to those who pay for it.

It is a profound problem, the average American movie costs about 100 million USD to make and market and it is a problem we will have to deal with over the next decade.

Peter M. Friess, Project Officer, ICT for Enterprise Networking, DG Information Society and Media of the EC, [http://europa.eu.int/information_society/index_en.htm], gave a very interesting perspective of

Security and Privacy Aspects for RFID – The European Way

RFID being a disruptive technology and there being no coherent policy the EC has begun work in the field.

RFID tags have a bad reputation in Europe, of course we have them on all our ID cards but as soon as people know that there is a tag they cannot see they become frightened. It is not about consumer interest but citizens' interests.

Stakes are high in Europe to keep up competitiveness with the US and Asia and there is a need for continued dialogue to build trust. Process efficiency is the focus of RFID applications, we learned that security and privacy is not a standard issue and depends heavily on the application.

Consumers want the right to choose and government wants to stimulate the margins of the new applications and businesses want to learn how to apply RFID technology and their boundaries. There is a need to define core principles and mechanisms which are inline with the EU Data Protection Directive and see how RFID can be applied in the context of the Directive.

To learn how other cultures look at security and privacy and the relations between objects and digital identities. A policy action plan to deal with various issues about RFID, data privacy and security are in the works and the Working Party 29 is working on guidelines and best practices on how to implement RFID solutions. In terms of research, there is a need for applied research on privacy and security of digital identities. A Communication of the European Commission will be issued on this in mid-March 2007.

Europe is very much committed to RFID which sometimes doesn't seem so and would like to take a leading role in a global context and try to preserve our privacy and security.

Robert John Garigue, Vice-President for Information Integrity and Chief Security Executive, Bell Canada, provided an expert view on

Semiotic Organization

There are new risks emerging in the way we manage information and the complexity continues as a new layer, the semantic layer, arises and we have to come up with a new management framework, a semiotic organization.

We are now moving from the industrial to the information revolution and it is not about the computers but all about the content. How do we address those risks?

Semiotics is a framework in which we analyse a physical layer, protocol layer and intentional layer and this is what we call pragmatics, syntax and semantics. Everything is about managing information and all our computational processes manage those token and signs to create a reality. If we look at deconstructing the information technology space all our organizations and technologies are sociotech structures. We have a 1) pragmatic layer, all the devices connected; 2) syntax layer, the protocols across the world and 3) semantic layer, the content interacts and this is very important to humans as this is where we create meaning and where organizations are able to understand what is going on and interpret that information, make decisions and change reality.

Today every single decision we make is computer mediated, our understanding of reality is based on how we link content to each other and derive new understanding, discoveries and relationships and in fact this is how we create new knowledge and computational capabilities are accelerating linking things together. We are suddenly managing our world at the ontological level and the notion of privacy is an ontology that becomes a rule based expectation of how certain types of information sets are going to be used in the context of certain applications, this is new and is a better way of addressing privacy and security issues.

The debate is on where we have the semantics in our organization, what is the definition of an individual, intellectual property as we start putting them in certain objects that have inherent in them certain types of logic, we take two ontologies and link them together; this creates new value processes, new knowledge and understandings but there are many risks associated with this.

When we look at the notion of we can address control at three levels: pragmatic and this has been the traditional DDoS, syntactic level trojans, malcode, even now seeing risks at the semantic level with spoofing, identity theft attacking the belief systems and will see new challenges skewing and biasing ontologies and belief systems. In that sense ontologies become the targets of choice, if I am able to bias the notion of privacy I will be able to take control of the new business model.

Sense making now becomes an individual strategy for survival how you determine truthfulness and trustworthiness is going to be an individual challenge we need new methodologies of evaluating the content and in that sense security capabilities do not exist today. We have a new management framework, no longer about the life cycle of the technologies but how we develop ontologies, establish data governance and taxonomies which talk about products, services and accesses and we are looking for quality of the data in the front end, life cycle of the information and the ROI on the intellectual capital when talking about knowledge creation processes. What we build into our technological capabilities we have to manage also, belief systems and ontologies.

Susan Landau, Distinguished Engineer, SUN MICROSYSTEMS Laboratories, USA, [www.sun.com], gave a brilliant talk on

Wiretapping the Internet – (or How Not to Introduce Security Holes into a Communications Infrastructure)

September 11th changed things quite drastically in terms of wiretap law with the Patriot Act but one of the things that doesn't get discussed in public is what was really important about the communications infrastructure with 11 September and Katrina is that while the phone system went down the Internet stayed up.

A 1994 US law says that digitally switched telephone networks must be wiretapped enabled as determined by the FBI and had the peculiar effect of being international once it determined what a digitally switched telephone looked like and sold internationally.

The law applied to telephone not information service switches but about 3 years ago the FBI asked that it be extended to VoIP which the Federal Communications Commission agreed to. The expansion was for a very narrow case of VoIP.

Circuit switch versus packet switch, circuit switch you have a very dedicated circuit that lasts the whole call, packet switched gets theoretically broken up into packets practically the packets can go the same way. In some sense the networks are very much the same, they have the same type of transmission facilities they both use routing and switching, began with all you can eat pricing models, used digital transmission and division multiplexing.

The PSTN has always worked with a very smart network and very dumb endpoints. Every time the network gets upgraded they still work with the same dumb endpoints nobody goes out and buys a new telephone each time a network is upgraded. On the other end, the Internet works with the idea that the end-user application developer knows what is important in the application but the Internet is completely blind to what the application is and instead the intelligence is at the endpoints. It is not completely true but as you go to real-time applications likes voice and video, of course you have a quality of service issue.

VoIP is all about mobility, different IP addresses. Mostly when we use the telephone we have the same identity whether we're using a landline or mobile phone, on the Internet most of us have different identities.

It is complicated to apply CALEA (Communications Assistance for Law Enforcement Act) to VoIP due to the variety of VoIP models, mobility and ease of creating new identities on the Internet.

We already have wiretaps with mobile phones and in the US we have roving wiretaps with which it's easy to tap cell phones in two cases when the cell phone is in its own locale, when it's outside it's locale but getting a call to it but difficult when it is out its own zone and initiating the wiretap. In the US a roving wiretap warrant requires that you specify both the person and place being wiretapped.

VoIP calls can be routed anyway over the Internet. However it goes peer-to-peer, that's what makes applying CALEA to VoIP very hard. You can put the wiretap at the providers but you don't know where the users are and IP connections change. The problem of applying CALEA to VoIP introduces a plethora of problems - physical security of the switching and routing equipment, 1,300 VoIP providers in US with fewer than 100 employees, ease of creating new identities on the net and secure transport of signals to law enforcement.

The real problem is that people call people and not IP addresses and trying to apply CALEA to VoIP in the Internet environment is extremely hard.

Dirk Van Rooy, Principal Scientific Officer, DG Information Society and Media of the EC, [http://europa.eu.int/information_society/index_en.htm], gave an interesting insight into the EC's perspective on

RTD for Trust and Security in the Evolving Information Society

Digital convergence is driving the future today and it will bring about new security and privacy challenges - the convergences of network, the critical infrastructures, RFID, Internet, mobile and location based services.

The vision of information society is an open metropolis, however gives opportunities but poses lots of security issues. The EC is taking steps to stimulate the construction of the an open information society on the one hand and on the other taking policy initiatives and supporting research in order to cope with security and privacy issues.

Research being supporting in the Framework Program 6 (FP6) in terms ICT, Security and Trust: 1) security and dependabilities of the technologies, the underlying infrastructure; 2) trust in the use of ICT and 3) enabling technologies such as biometric, trusted computing and cryptography. The total support give by the EC in FP6 is 145 million EUR.

The Federated ID Management project for example looks at the whole world of identity management where the total identity has subspace and partial identities, there is an overlap and we have to separate the two. The EC tries to stimulate to a large degree user control and empowerment, not just applications that decide for you what kind of privacy you get.

The expected opportunities for research in FP7 are in Pervasive and Trusted Network, Service Infrastructure and Critical Infrastructure Protection.

Clifford Larsen, Professor of Law at the Bucerius Law School and Dean for the Master of Law and Business program, Bucerius Law School, Germany, made a thought-provoking presentation of

Challenges For the Teaching of Disciplines

The interdisciplinary nature of digital convergence creates very difficult challenges for the teaching of these materials in higher learning. Within faculties the topics often cut across the competencies of other professors. It is often the case that criminal law professors don't know that much about cyber crime, they focus on traditional criminal law patterns and such and that those that instruct on Internet law know little about criminal law. In addition, there is often a disconnect in what is going on in the world today.

Students in Europe are taught to be judges and that has historically been the model while traditionally the Anglo-American is more practically oriented but that focus is disappearing, many professors certainly in the US have very legal practice experience.

These types of topics don't have much importance for many of the people on these faculties that would prefer to teach constitutional law. Banking and insurance taught by adjoints who come in but they don't have the cache in legal or academic world such that the faculties will focus resource in those individual fields and as a result many of the individual faculties particularly law but also business devote very few resources to these particular topics, topics such as these merit greater inclusion in university education.

Bucerius together with the WHU brings together students from different disciplines, trained lawyers, business people and scientists to understand what is involved in the creation of need products and industries taking different approaches in the teaching and professors have to adjust their teaching methods and takes a comparative international approach because no one legal system should be at the heart of our program.

Michael R. Nelson, Director, Internet Technology and Strategy, IBM CORPORATION, [www.ibm.com], presented with great clarity, insight and inspiration the subject of

Security, Privacy and the Next Generation Internet

We are really entering the third phase of the Internet; the second phase was all about the web, the amount of information going over the Internet increased by a factor of 200 in less than 2 years. What is happening now is even more important because it is not just about one technology but a whole suite of technologies, different pieces of it 2.0, web services, wireless Internet technologies.

The first 20 years of the Internet was about one-to-one Internet the first thing we did was to use the Internet to log onto a remote computer and suddenly e-mail was born. The web started the next phase, one-to-many phase, fundamental transformation totally different the net became a broadcast medium and it has changed the entertainment industry, enable eCommerce. Napster was the first example of the next phase, the many-to-many phase, it was very limited only about sharing music files but it transformed the music industry.

Taking the same architecture and going one step further and that is the service oriented architecture, different computers in different corporations on different continents together over the Internet, sharing data, sharing software and allowing us to combine these different

components to create new components. We are combining applications and data in different places and this will unleash another factor of hundred increase in the amount of traffic on the net, the 100/100/100 vision, one hundred times ore bandwidth, a hundred times more data stored on the net and 100 times more devices that will lead to thousands more transactions not just a few more hundred e-mails that we exchange every day.

As we connect more and more systems together and more entities together businesses, organizations and individuals we start weaving together a huge value network, we are not just exchanging e-mail here but computer capability, hundreds of different companies, customers and partners exchanging IT systems tightly together using open standards and open networks.

What does that mean for privacy, more people have to trust each in new ways and find new technologies to do that meaning according to some doomsayers the end of privacy or more trust being developed between more people on a global basis?

There are many different steps when an individual interacts with an organization and at each step there will data collect and at those points we're going to have to find a point to build privacy into the system. There is no single way to solve this problem as we build this huge trusted network we are going to have build standards and technologies that meet the needs.

The first thing that happens when someone logs on you get a privacy notice, we are now automating those privacy notices making them machine readable, I then authenticate myself, we have to get privacy enhancing authentication and authorization systems and then the individual shares the data with the company and now things get really interesting. It has to be protected, run through applications and each step of the way we have some technology to make a difference for example "sticky policies" which allows individuals to classify how they want their data protected and then assure that privacy policy is affixed to the actual data. That is particularly important as countries start sharing data across corporate and national boundaries. Most important piece of this is that you will able to do an audit and check that your data is being protected the way you wanted it to be.

In the end we are going to give up a little bit of privacy for transparency because we will know how our data is going through the system and we will be more secure in giving up some of our private data.

We are the critical point in the third phase of the Internet and there are at least 15 critical technological choices we are going to make in the next three years in this a community, users, government, vendors. There are a wide range of issues out there including authentication, enhancing technologies, spam filtering, DRM and have some component of security and privacy built into them. We have to pay attention as to how these decisions are being made, what standards are being set and these standards have to be set in an open way. One of the big debates in a year or two is going to be about authentication systems, are we going to let one or two companies develop proprietary encryption and authentication systems that we all have to use? Or will we have open standards based on open source solutions to this critical question of identity management and authentication systems in cyberspace? This is just one of the critical issues we need to worry about as we move forward.

The **moderator** of the opening session, **Sylviane Toporkoff, President of the Global Forum**, welcomed and introduced the members of the panel and opened the second day of the Global Forum that has been dedicated to innovative applications.

As the first keynote speaker of the Opening Session, **Claude Bonard, Secretary General of the Geneva State Chancellery**, Switzerland, shared his valuable experience in a very interesting subject:

How Internet Voting Redesigns Democracy

Geneva is one of the 23 sovereign cantons of the Swiss confederation, with its own constitution, laws and institutions. In addition to the cantonal parliament, the Canton of Geneva has 45 local parliaments, supplementary governments at the communal level and a similar number of administrative bodies. In Switzerland direct democracy means the right of the citizens to have the ultimate say on every law enacted by the parliament. Each citizen can ask for an amendment of a law or the constitution at a communal, cantonal or federal level and each citizen has the right to call for a referendum. A referendum is compulsory in the case of a modification to the constitution or the ratification of an international treaty.

Against this background, Switzerland has introduced Internet voting. However, Internet voting does not raise out of nowhere: It requires a fertile institutional ground since online voting and e-Democracy are steps on the path of flattening the political hierarchy. Reducing the distance between citizens and politicians also means giving citizens an increasing voice and control. ICT can provide a new and simple way to exert this control.

Having conducted eight online voting trials since 2003, Geneva plans to implement Internet voting as a regular way of casting a vote in the near future. Today, only 5% of the voters cast their votes in traditional polling stations, 22-25% of the voters use Internet voting, while 70% of the voters use postal voting. The success of Internet voting is clearly linked to the dissatisfaction of citizens towards their governments and the feeling of a growing gap between the peoples' daily life and the politics. The challenge is to bridge this gap and e-Democracy provides a useful tool for bringing policy closer to the citizens. The 22-25% online turnout shows that there is a real popular need. The online turnout remained stable independent of the ballot type. 90% of the voters who tried e-Voting keep using the Internet to vote in following ballots.

At first sight, the typical e-voter is male, under 55 years of age, with an high school or university degree and an above-average income. However, there is no explanatory value in this socio-demographic data. The use of Internet voting can not be explained by the political shape of its users neither: e-Voters are evenly divided in partisan affiliation and always voted with the majority. The common characteristic of the e-voters is not an objective feature but a subjective one: e-voters positively assess their own IT skills and trust online information, communication and transactions. A new sociological model emerges where it is no longer possible to predict the behaviour of a person based on quantifiable measures but on the subjective feeling of a person. The divide is no longer between those who have access and those who have not, but between those feeling skilled and those feeling unskilled.

As regards the federal ballot in September 2004, 55% of the persons who voted via Internet described themselves as usual abstainers of the Internet, 30% of the e-voters have been occasional Internet users and only 19% of the e-voters were regular users. Online voting breaks an invisible barrier that keeps many voters away from politics. Since 90% of voters who used e-Voting once keep using it, a lasting effect on the turnout can be expected. During the coming month, the Government of Geneva will debate on the proposition of a law to make e-Voting a regular way to cast a vote.

The **Q&A** part of the presentation addressed the question whether Geneva has also thought of enabling citizens to vote from other devices than the Internet, e.g., mobile phones? Claude Bonard emphasized that the Geneva Government believes that voting must have a "price": It has to "cost" the citizens an effort to vote. Geneva considers that mobile phones are not suitable for e-Voting for two reasons: The very complex voting system allows voters to compose their own list of candidates, mixing people from different parties. This is hardly feasible when using a mobile phone. Furthermore, Geneva considers that mobile phones distract voters from the vote.

Nagaaki Ohyama from the Tokyo Institute of Technology, Japan, gave a brilliant and very distinguished presentation on

Japan's IT Structural Reform Strategy

In January 2006, the IT strategic headquarter formed in the cabinet issued the "IT structural reform strategy". So far, there have been two e-Japan strategies: The e-Japan strategy 2001 mainly focussed on the construction of broadband infrastructure. The e-Japan strategy 2003 than moved to the full use of IT infrastructure. Main areas of applications in the context of this strategy have been e-Government and e-Health. e-Government is almost completed, whereas e-Health is not yet well advanced.

The IT structural reform strategy intends to use ICT as a leverage to address the challenges of the expected upcoming social dilemma. This explains the strategy's strong focus on Healthcare and e-Government. The IT structural reform strategy promotes the construction of a national database for evidence-based healthcare, evidence-based medicine and personal electronic health records in order to support home medical treatment and consultancy by the use of ICT. Within its efforts in fostering e-Government, the Japanese Government will establish a Government Project Management Office. Furthermore, each Ministry will create its own Project Management Office to support the entire process.

e-Government in Japan is moving from a construction stage towards steady operation. More than 96% of the applications and declarations have been put online by the end of March 2006. However, with about 0.7% the ratio of online users is very slow – mainly due to the fact that the digital signature is not yet well popularised. This is why Japan tries to launch a new eID card adding new levels of convenience to the citizens.

Japan is very rapidly becoming an aging society. As many other countries, Japan is facing an increase of the average life span and a decrease of the birth-rate. This causes an decrease of the labor population rate and a shortage of funds. One objective of the proportion of healthcare within the IT structural reform strategy is the introduction of a personal healthcare record system to enable retrospective examinations (personal benefits) and to establish a preventive medicine (public benefits). As every home is expected to have digital TV by 2011,

new medical services using digital TVs for home healthcare will be created. Japan is currently undertaking efforts to release the personal data to the citizens themselves, including health records. The intention is to set up – for each family - a family account for e-Government and social security services in the cyber space. The eID card should be used to provide easy and secure access to the personal data space.

As regards the status of the current resident registration cards: The number of cards issued since August 2003 is much less than expected (about 1 million). At present, two activities are taking place in parallel: The preparation of the second version of resident registration card and the creation of one unified social security card for national pensions, health insurance, labor insurance, etc. Their common function will be the eID. The new eID card will be a PKI-based smart with photo. Each application will use a different ID number. Such smart card with eID functions is indispensable for both healthcare and e-Government applications. Solid ground work is currently taking place in Japan and a decision will be made by the end of 2006.

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During the concluding **Q&A** part of this session the question whether Geneva's citizens can raise and discuss initiatives via the internet was addressed to Claude Bonard. Mr Bonard stated that this is not yet possible. The deployment of Internet voting all over Switzerland is the first step. The second step will be to raise signatures for initiatives, referendums etc. However, it is the declared aim of the Government to reach this level.

The second question addressed to Mr Bonard concerned the fact that people often do not care about politics and that the information provided to citizens by governments is often meaningless to them. Claude Bonard emphasized that e-Voting is based on usual voting rules and that there is no need to change the attitudes of the citizens. This is one of the reasons why citizens adopted Internet voting so fast.

The **moderator** of this session, **Jean-Pierre Chamoux, Professor at the University Paris V René Descartes**, France, welcomed the participants and introduced the speakers. Jean-Pierre Chamoux is professor for communications, he was formerly the French telecommunications regulator.

Jean Christophe Lagarde, Congressman & Mayor of Drancy, France, made a noteworthy presentation on

Drancy's Pioneering Municipal Network

Located 9 kilometres northeast of Paris, the City of Drancy has 62,500 residents. Drancy is historically a working-class city, characterized by a very low ICT usage. Drancy has very few industries and is a rather poor city with a small budget to make investments in ICT infrastructure.

In 2002, the City of Drancy had a costly and obsolete communications network with 30% of Drancy's residents not having access to high-speed networks. As it was impossible to upgrade the existing infrastructure, a new solution to interconnect the different municipal services had to be found. The solution was IP telephony and in 2002, Drancy was the first city in France using IP telephony. To do so, very different kinds of networks have been used: ADSL wherever this was possible, but also laser beams, WiFi and optical fibre. The investment was about 350.000 EUR, with a return of investment of 18 month due to the omission of the costs for telephony.

In order to install a video surveillance system in 2004, a fibre optical backbone has been deployed throughout the city. This required a considerable investment, but today, the city of Drancy uses its fibre optical network for video surveillance, the transmission of data and VoPI, which has led to annual savings of 340.000 EUR.

These initiatives have solved the problem of interconnecting the municipal services – however, the problem of providing high speed access to every citizen of Drancy remains unsolved: As the French legislation does not allow a municipality to become an access provider or to rent municipal fibre to an operator, there are still 20.000 inhabitants without access. The City of Drancy thought about using WiMAX solutions to provide access to its citizens, but corresponding to the French legislation, a municipality cannot apply for a WiMAX licence. This can only be done by a *département* and the *département* Drancy is belonging to does not want such licence. Such legal framework creates the strange situation that in times where everybody is talking about reducing the digital divide, a municipality that invested a lot of money in the deployment of a fibre optical network can neither provide this network to its inhabitants nor apply for a WiMAX licence.

The City of Drancy will continue to develop the communication infrastructure of its municipal services and the next step will be to use WiFi for "geolocalising" the municipalities employed field staff, to equip police cars with the possibility to transmit video surveillance data, and to enable fire and emergency services use the WiFi network to deal with crisis. Such project is expected to generate considerable savings, as the city will no longer pay the mobile telephone costs of its municipal agents once the WiFi network is created.

During the following **Q&A** part of the presentation, the question raised whether the French legislation is supposed to change in the near future. Jean Christophe Lagarde was confident that the French law will change provided that the Government becomes aware of the social injustice such law causes and that a Ministry lobbies for changing the laws.

Omar Al-Rawi, Member of the Vienna Regional Council, Austria**,** shared some striking thoughts on

How to Make People Participate?

With the enlargement of the EU in 2004, Vienna became the geographical heart of Europe. Within a diameter of 100 kilometres, Vienna is adjoining four nations, four cultures and about 6 million people. This situation and especially the proximity to some of Europe's low wage countries, led to a number of challenges. Against this background, it became the city's declared aim to become a knowledge-based city and a centre of biotechnology and science. This was at the beginning of 1995, when Austria joined the EU.

Having successfully implemented an exhaustive e-Government portal, bridging the digital divide has been – and is still – one of the main priorities of the City of Vienna. The most disadvantaged communities in terms of access are elderly people, minorities, women over 40 years of age, and socially disadvantaged and disabled people. The city has implemented a large number of projects to foster digital inclusion. In order to include people when they are still young, a project has been realised in 1997 to provide access and training to Vienna's 400 public schools. This project has been recently relaunched with an investment of 21 million EUR in order to teach the young generation how to use this new medium. Furthermore, 135 free access points are providing access to those people who do not have access at home or at work. Retirement homes offer free access to the Internet to the inhabitants and their visitors.

There is a real challenge regarding minorities due to the large number of persons immigrating to Austria who do not speak German. The problem is not only to provide access to the Internet and to Vienna's e-Government portal to these people but to make them using it and to make them participating. Integration means participating in something and people will not participate if they do not feel part of it. If one does not address their particular problems and needs, migrants will not participate. This is one of the largest challenge – not just to implement and to provide access but really to make the medium attractive to be used.

One of the projects implemented in Vienna enables citizens to use the mobile phone to pay their parking fees. People can either use a paper based solution or send a SMS to pay the fees. Furthermore, Vienna implemented the Web Accessibility Initiative guidelines to ensure that disabled persons can access Vienna's e-Government portal. The City of Vienna has also set up a request system enabling every citizen to give comments, complaints or suggestions - either anonymously or by name.

The question that came up during the **Q&A** part of the presentation referred to the fact that Austria succeeded in putting all government documentation online and also has a significant progress in dealing with e-Justice online. At the same time, the challenge of making these online services used still remains. The question was whether this priority of getting everything online has been right. Omar Al-Rawi affirmed that it has been definitely the right

way for a city committed to becoming a knowledge city. However, it is important not only to concentrate on technology and access but also to address the social and cultural challenge. e-Government is not only about bringing services to the citizens but also attacking citizens to use the services.

Chris Vein, Chief Information Officer and Executive Director of the Department of Telecommunications and Information Services, San Francisco, USA, presented with enthusiasm and insight a great and ambitious initiative for bridging the digital divide

TechConnect - Universal, Affordable Wireless Broadband Access for San Francisco

The major of San Francisco, Gavin Newsom, set the ambitious goal not to stop until every San Franciscan has access to free Internet service. No San Franciscan should be without a computer and a broadband connection. These technologies should connect the citizens to the skills and jobs of this new economy.

The central pillar of the city's TechConnect project, aiming at connecting the citizens of the San Francisco to technology, is "connection". Rather than the government providing services and business and citizens coming to the government, the government should be taking those services out to citizens. This concept has been brought to bear on the problem of homelessness, through the project Homeless Connect. Every month individual community volunteers partner with city government, nonprofits and the private sector to provide a one-stop shop of health and human services for homeless San Franciscans.

The four main areas the concept is relying on are community involvement, research and pilot projects, government leadership and partnerships TechConnect focuses at the same time on social development, economic development and the efficient and effective service delivery.

The City of San Francisco, bounded by water on three sides, covers 49 square miles. San Francisco is a city of 750.000 inhabitants that grows to 2 million people during the day. Furthermore the city faces serious problems such as an increasing aging population, poverty and a very racially diverse population. 49% of the people living in San Francisco are born outside the country and 52% of the people do not speak English as their first language. In the context of economic development, San Francisco recently competed in a state-wide initiative where the city won the stem cell research institute in the State of California. There has been a lot of publicity around winning that competition and as a result a lot of companies have moved to San Francisco.

Wireless broadband is a relatively easy and cheap solution. There is fibre within the city and county of San Francisco but certainly not enough to provide support. Furthermore it is legally forbidden to use the municipality owned fibre to commercial use. It is very important to focus on a complete or holistic approach to bridging the digital divide. Access to the Internet is very important but it is not very much good if the people do not have the equipment to access it (via whatever device people could use). Thus, San Francisco is working on innovative solutions to provide either free or low cost alternatives to equipment.

In cities facing problems related to cultural diversity and economic divide, it is important to figure out a way to organize content in order to enable someone who does not necessarily use the Internet to easily find practical information related to his/ her daily life elsewhere.

San Francisco searched for an affordable – if not free, universal wireless broadband network covering the 49 square miles of the city and featuring fixed, nomadic, and portable use in order to support residents, businesses, institutions, government, and visitors. The network should use existing WiFi technology at a minimum and should be realised in a way that protects privacy and security of all users, and provides consumer choice through open access.

San Francisco did something unique – at least in the US – by first doing a request for information and comment that was sent out to see if there are commercial vendors who are interested in a business model that provided free service. This was followed up with a request of proposal. Among the six proposed solutions that were submitted to the City, Earthlink/Google has been selected.

This project has captured worldwide attention over issues like privacy and there has been a great deal of controversy. People do not necessarily trust the fact that all that data have been stored somewhere. They do not want "big brother data" available for somebody to look at.

San Francisco is currently in a process of negotiating the agreement with Earthlink/Google. The agreement should be negotiated by the end of the month in order to start building out the network next year. Within 6 month San Francisco will provide 2 levels of services to its citizens: a free tier sponsored by Google and a pay tier sponsored by Earthlink.

Tom Inman, Vice President Marketing, Information Management, IBM CORPORATION, USA, [www.ibm.com], brilliantly provided a fascinating example of a company experiencing

The Shift from Proprietary to Open

In the early 1990s, IBM experienced billion dollar losses. A new CEO, the business leader and a visionary Lou Gerstner, was brought in to turn the company around. Under his leadership, IBM moved from proprietary mainframes to open systems and standards. This has unleashed a completely new IBM and since that period of time the shift from proprietary to open has been fundamental to everything IBM does. A lot of that openness has driven the transformation of IBM and is driving innovation around the world.

Main reasons for innovation are: productivity, economic growth, meeting new needs of society, new services, creating national and global markets, generating jobs and wealth resulting in higher standards of living. Some of the drivers of innovation are: growing ubiquitous access, open standards, widely adopted and standard based technical and transaction-oriented approaches enabling interoperation and collaboration, and a new business design.

One of the fundamental approaches of IBM transforming itself was to take business processes that were entirely siloed inside of each of the different businesses and to lay them horizontally over the businesses. This horizontal integration and the ability to collaborate with other entities around the word entailed cost cuttings of 6-7 billion USD a year and made IMB's supply chain far more responsive. Many of IBM's thoughts and projects around collaboration and open access are being reflected in a lot of modern publications on innovation.

IBM regularly surveys its customers and a recent survey of over 750 CEOs of public companies, governments, and academics revealed the top level need to innovate. CEOs feel an intense pressure to innovate. Earlier surveys carried out between 1999-2002, a period of time characterized by the drop in the Internet bubble, showed that everybody was focused on cutting costs. A survey carried out in 2004 revealed a top level focus on revenue growth with cost reduction, asset utilisations and risk management right behind.

The 2006 survey showed that these issues are still important, but that innovation is the driver of this. CEOs are trying to innovate products and services, the way they innovate and participate in markets, they innovate operations and in particular business models. CEOs believe that innovation and the ideas to innovate occur in the first place through employees, the work with business partners and, together with the business partners, and the work with their clients.

The key source of innovation is information. By the year 2010, the codified information of the world is expected to double every 11 hours. How to manage these information to get innovation in a business value? The challenges CEOs are facing in a globalising world are more mergers, acquisitions and risk, the need to comply and the desire to do a better job of serving customers, as well as supply chain complexity. But the reality is an explosion of information and this information is often inaccessible, inconsistent, inaccurate, untimely, costly to manage and incomplete. CEOs told that they have to do a much better job of managing and leveraging the information. Enterprises that do so see five times more value in terms of return on equity and return on asset. Information itself can be considered as a strategic asset.

Customer information is crucial for being able to deliver a unique customer experience and customer-sized products or to cross-sell products to customers at any particular touch point (over the Internet, at sales offices or via call centres etc.). The ability to deliver customer information as a strategic asset, that could be used in all the enterprise and all the places where customers are touched is a strategic advantage. Information managed strategically with this access is a powerful engine for innovation. Sustain innovation requires collaboration and culture and proper skills.

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During the concluding **Q&A** part of session, the moderator stressed the fundamental change of the way IBM innovates: IBM moved from innovating on processes to the innovation of behaviours and services. This is an important change reflecting the economic shift from the production of industrial goods to the production of services. Another form of innovation happened in the company's communication: In the past IMB advertised computers – today, the company is advertising people.

The question addressed to Tom Inman concerned the problem that the telecom industry is focussing on asset utilisation and cost reduction – but there is no risk and no innovation. And with the exception of about 10 players in the world, innovation is not moving forward as it should be. Tom Inman stated that there is a bit of innovation in this industry. However, the telecom industry is an industry that was burdened with very high costs and moving from proprietary to open puts an enormous pressure on a company. They are coming through that and it is likely that innovation will move forward in this specific industry soon.

Another question addressed to the panellists, concerned the problem that going "e-something" in most cases also means going paperless. What are the recovery plans – if any – in case of an electricity black-out, a terrorist attack, or an earthquake? Chris Vein gave the example of San Francisco, that just "celebrated" the 100th anniversary of the great earthquake of 1906. There is an incredible amount of research and planning in San Francisco to minimize the impact of the next large earthquake. Currently, there are systems that are back-upped and off-side. Thus, if the data are destroyed or compromised, they can be recovered. However, it is planned to make this process streamlined and better and to go to virtual data centres and virtual warehouses. But this is a very long and expensive process.

The question addressed to Omar Al-Rawi referred to citizen's participation. Social networking platforms are becoming more and more popular in the Internet, but there is an absence of this kind of participation on the government level. How does the City of Vienna envision that - once there is universal access - citizens participate by contributing and creating content? Omar Al-Rawi stated that the first step is to make citizens using the Internet and these new tools. The virtual city plan of Vienna represents a good example: With up to 2,100 persons per hour looking for an address in Vienna, this was one of the most attractive tools. The City of Vienna has a huge and complex administration and one of the first innovations was the creation of a one-stop-shop to facilitate access to public services. If citizens notice that they can save a lot of time – and sometimes even money – by using the Internet, they will use it. Vienna is currently starting to work with Open Source to drive innovation.

Transforming Government, Democracy and Public Services

As **moderator**, **Daniel Van Lerberghe, President & Executive Director, POLITECH INSTITUTE (European Center of Political Technologies), Brussels,** Belgium introduced the debate

Transforming Government, Democracy and Public Services

Transforming Government, Democracy and Public Services is at the center of the Modernization of the State, one of the main pillars of the EU Lisbon Strategy to transform Europe into the most competitive knowledge-based economy in the world.

Since the EU Interministerial Conference on e-Government organized last year in Manchester by the UK Presidency, “Transforming Public Services” has marked a new phase for e-Government in Europe leading the way to a new e-Government action plan in the framework of the EC i2010 initiative focusing on 5 five major objectives: 1) No citizen left behind; 2) Making efficiency and effectiveness a reality; 3) Implementing high-impact key services; 4) Putting key enablers in place; 5) Strengthening participation and democratic decision-making. Therefore, the transformational phase is a key driver for more transparent, accountable and open governance providing more efficient and citizen-centred public services.

e-Government and e-Democracy have become e-Enablers in the transformation of the public sector fostering better governance, effective management of resources, re-engineering of processes, inclusive government, efficient public services and citizen-centred government.

The modernization of the State, inherent to an increasingly global and interconnected world, undertaken in many countries, is driven by the notion of '*public sector performance and transformation'*, is driven by ICT as a key enabler and is emerging as a major challenge for the public sphere since the creation of the 'nation state' at the Treaty of Westphalia in 1648. Will the transformation of Government, Democracy and Public Services e-Enabled by ICT be a revolution comparable to the Westphalian transformation of the state?

Overcoming this new challenge requires addressing critical issues at policy and implementation levels such as: 1) the correlation between state performance and country competitiveness; 2) organizational change and organizational culture; 3) monitoring and assessing change with adapted indicators and measurement frameworks; 4) managing human and financial resources with new processes and skills; 5) the need for security and the right for privacy; 6) inclusion and accessibility; 7) engaging citizens and civil society in decision-making processes for successful take-up of policies; 8) enhancing democracy and good governance; 9) providing better services to all.

As Session **Chair Nicolas Conso, Head of Unit "Development of Digital Services", CAISSE DES DÉPÔTS ET CONSIGNATIONS,** France, [www.caissedesdepots.fr], shared his vision and remarkable knowledge on

The Importance of Interconnectivity

We must put infrastructures and systems in place to build a reliable e-Administration and the issue now is the interconnectivity between the national, regional and local.

Local authorities wish to improve services for their clients, citizens and companies based on their competencies instead of having to readdress the issue of putting the citizen at the centre each time and secondly and to accompany the citizen user in the usage of those services.

We have come to realize that in the new frontier by the fact that each administration puts the citizen at the centre, the citizen finds themselves at the centre of several administrations and citizens and businesses still have to turn to several administrations to obtain services.

It is particularly true in what is called "life events" such as moving, marriage, death of a family member, birth of a child and at those times the citizens most needs coherence in the services provided however in which they feel most frustrated having to go through several processes, even online with several administrations.

What is the issue and difficulty we have found to put in place such a system like the one-stop shopping? We are facing the complexity of a stack of administrations, the local, regional and national. There are two focus points to advance these services - to have a national framework, clear for all actors, permitting interoperability and define the rules of the game to go further by being the architect of this exchange of common services.

This is part of the Caisse des Dépôts' work in accompanying local authorities and local authorities are well placed to provide general such comprehensive services to the citizens, it is easier for a local entity to integrate regional and national services into theirs rather than a national government having to search for all the many local authority services available.

In the following years we must put in place two types of infrastructures, one to exchange information between local administrations in a secure way and connect the back-offices and prepare the information which has legal value and is sensitive such as personal data on health, money, etc. and infrastructures that permit combing the management of personal data between all the administrations in a coherent manner to facilitate the front-office.

Giancarlo Del Bufalo, Head of Department for General Administration, Staff and Treasury Services, Ministry of Economy and Finance, Italy, provided a unique and very interesting picture on

E-Government in Italy

Since the late 90s there has been a great increase in the use of ICT in the Italian administration. Advanced fiscal services and online tax declaration is one of the best examples. Nevertheless there is much to do concerning the interconnectivity of administrations and their way of operating due to the fact that some of them did not take-up technology as easily as others.

One of the major goals of the Italian e-government plan is a reform of the PA by means of innovation services, transparent government actions and greater citizen participation in the decision making processes. The acheivement of several goals allows me to say that the first digitalized phase of the public administration has ended and that it involved basic infrastructure development, greater spreading of information technology, the introduction of new service supply channels to citizens and a new e-procurement legislative framework.
The Ministry of Economy and Finance, assisted by Consip, plays an important role in implementing public organizational changes and purchasing applications. For example, in the Italian public payroll system, 1.5 million EUR are paid electronically each month and the employees can receive their pay stubs directly by mail.

Certainly, cultural resistance is still a problem, and even though we have made a lot of progress we still have a lot to do.
The next goal will be fully mature online services, with a high level of interaction among them.

Eric Legale, Managing Director of Issy Média, France, gave a thought-provoking speech on

e-Administration & e-Government in Issy-les-Moulineaux

Administrations are actually now beginning to change and it's true that there must be if a champion like Mayor Santini saying we want to be modern, is responsible for fostering change and has real political will.

In Issy-les-Moulineaux the administration is fostering new projects, that vision and has put political interests on the back burner simply because it has realized that in its internal functioning technology was very helpful.

The first concrete result is quicker turn-around time in providing services to the inhabitants, for example we inform citizens by SMS that their passports have arrived at the Municipality and they gain 10 days between the time they apply for a passport and pick it up.

As we accelerate the turn-around time we also accelerate the demand of citizens and we work in a more decompartmentalized manner, exchanging e-mails no matter what our position in the municipality and domain is because the main concern is how to provide more efficient services to the citizen.

The key word is access in order for citizens to better dialogue with their representatives they need access to the Internet or mobile phones, issues relating to infrastructure and the network and fibre optics, WiFi which permit this to happen and to accompany citizens with low purchasing power to be equipped. Issy-les-Moulineaux has deployed several services: 1) the Citizen Panel comprising 850 inhabitants, representative of the population consulted by Internet on municipal services; 2) refurbished computers at less than 100EUR; 3) the IRIS service counter to provide the same information and services regardless of the channels being used, mobile phone, physically and of course most come to City Hall and 4) the Interactive City Council, live broadcasting of the City Council's sessions on cable TV and Internet, citizens may ask questions to representatives during the breaks and web-users can participate through the City website.

In e-Democracy or participatory democracy transparency changes everything, it is the idea that the decision taken by my representative was clear to me as I was able to read materials months in advance or attend meetings explaining the process behind it. IT is not to reinforce a current idea but to help us improve the quality of citizens' lives with their participation.

The only regret is the fact that we cannot measure the impact this has. Issy-les-Moulineaux has clearly gained financially and in time but in terms of democracy how do you measure it? The only indication perhaps is the rising voter turnout and the rates of voter turnout in Issy-les-Moulineaux are usually 2 to 3 points higher than the average in on a national level.

Ara Levon Hakobyan, Adviser to the Prime-Minister of the Republic of Armenia, provided a very interesting look into

The ICT Strategy of the Republic of Armenia

The active pursuit by the government of the Republic of Armenia over recent years has been aimed to taking it to the forefront of the ICT sector and is one of its priorities. ICT is not merely a branch of industry rather an effective tool that can drive the growth of other sectors and enhance effectiveness transparency of governance, improve access to public services and boost country competitiveness productivity.

Recognizing that building a knowledge economy and developing systems of governance, education, culture Armenia ha put into place a plan for information society development which is a means of eradicating poverty and takes into account the Millennium Declaration.

Armenia sees a strong democratic society without digital divide which cause deep economic and social gaps and is confident of achieving the vision through mobilizing the required financial infrastructure technological and professional capacity and potential. Present achievements instill the hope that the IT sector will provide new resources for continued growth of the economy.

To support the development of the IT sector a council was attached to the Prime Minister in 2001 and includes representatives of all the stakeholders including respective ministries, private companies' scientific and non-governmental organizations. Owing to public private partnership it has enjoyed investment in the IT sector, new course and curricula have been introduced to schools and universities and the regional skills training centres established. As a result IT output has reached 1.7 of GDP in 2004 which is a figure typical of countries with a developed IT industry.

Effective implementation of e-Governance will make government more accessible to citizens and businesses and the impact would be to make government more effective and more accountable. The success of e-Governance transformation depends on a number of factors, including the need for effective e- Leadership where leaders have the skills and vision to push for that transformation, investment is needed in the ICT infrastructure and the training of public servants and development of illiteracy in the population.

Jean Séverin Lair, Deputy Head of Unit for the Development of Electronic Administration, Ministry of Economics and Finance, France, motivated with his talk on

Developing e-Administration in France

Dealing with administrations in France may be a dream on the one hand and on the other a nightmare.

Take for example opening a restaurant in a touristy area of France, the dream is to open a restaurant in a touristy area of France and the nightmare is to see the administrative contacts one has to deal with, about food, sanitary and environmental regulation. Citizens are faced with a multitude of administrative entities.

To resolve this problem is not technical however reform of the state, improve the processes and do away with certain laws that already exist. The worst thing we can do is to say that we are going to add information society to what already exists. It must be a mutation.

One tempting aspect of information society is that it provides it collects all the information useful to citizens in one place and while it may be convenient that means that all the data can be gathered in one location which is France we are very sensitive to. We have to protect personal data and so fix some limits to technology.

We realized that all the social classes and levels of education have the same tendencies to take-up technology. This is quite surprising but is very cheering in developing electronic services.
We are in a context where politics is very strong, the image is very strong and that can't be denied. Therefore, electronic front-office is always a major concern but tends to be overdeveloped contrary to back-office and infrastructures, which is what will permit all the systems to work together which is very important in terms of efficiency and in terms of reducing costs.

Luc Smet, Advisor- General, Federal Public Service Home Affairs, General Directory Institutions & Population, Belgium, shared with enthusiasm and great knowledge

The National Register, the Belgian eID-Card, and Some Lessons Learned

In 1983 a law was enacted in Belgium forcing municipalities to participate and define roles, responsibilities and tasks but also to protect privacy as at the time there was no specific regulation regarding privacy.

The three objectives of the national register is to facilitate information exchange, permit automatic updating of all those databases, that a person's identity is correct in all those databases and simplify certain administrative formalities.

One of the concerns of the Federal Public Service Home Affairs was transparency which was already in the 1983 law and every citizen had the right to be shown their data and request corrections in the national register and municipalities couldn't refuse.

With the eID (electronic identity card) the first applications service is to give citizens access to their national register information which allows citizens to see who consulted their information in the last six months and furthermore, to obtain documents directly on their PC,

with digitally signed XML files digitally signed which you can send to someone else without having to go to the municipality anymore. Of course if the data is not correct you cannot change it yourself you have to go to the municipality, it is the only one who can correct it.

The Federal Public Service Home Affairs learned during issuing the card that first of all interoperability with other sectors such as banks is very important, everyone should be able to read the eID. Secondly, not to put biometric data on the ID card, technical experts estimate that authentication offered by two pin codes on the eID is sufficient for protection. However it is a highly sensitive matter and an electronics personalization technique like biometrics needs to be above any usable true and standardized interfaces.

Julia A Glidden, International Advisor, ICELE, UK, provided a very stimulating talk on

The International Centre of Excellence in Local eDemocracy

The International Centre of Excellence *in Local eDemocracy* (ICELE) was launched to help us garner best practices, case studies and examples on ways in which to engage citizens in government. Toward that end, we are keen to explore the topic of this panel today "transforming government, democracy and public services" and to better understand the true mechanisms for transforming government.

ICELE hopes to take advantage of privileged opportunities, such as the Global Forum, to gather together, with experts from around the world to share knowledge and expertise and to brainstorm the ways in which technology can be used to enhance citizen participation. Our goal is to then share this knowledge not just with friends and colleagues who are fortunate enough to meet regularly at international conferences and events, but also the wider public.

ICELE's website , as you will see, is in its early stages, using its portals to tell people about about eDemocracy tools and practices - What's a blog? What's a Vlog? How do you consult online? The website represents a good start. Nevertheless, we aren't even at the beginning of the beginning of the journey in terms of harnessing the potential of engaging with citizens to transform 'government, democract and public services.' To truly deliver on this vision, ICELE needs harness the brainpower of academics, industry, thought leaders and pubic administration officials from around the world.

ICELE aims to be a launching pad for radically rethinking the way technology engages citizens in government. As such it needs to examine the feasibility of linking concepts such democratic engagement and service transformation and ask the touch questions. So let's have this debate. Let's really use the power of interactive two-way media to stimulate conversation and share ideas in new and challenging ways.

John G. Jung, Chairman, ICF Intelligent Community Forum, USA, gave a very clear interesting expert view on

Creating Intelligent Communities

Creating intelligent community is in fact dealing with engagement, bringing people together not only at the government level but also at other levels, government and private sectors have to come together and with their institutions.

ICF Intelligent Community Forum likes to talk about public private partnerships, models ways in which we can use those models to stimulate other communities to become better with their own quality of life, with economic development, so that they themselves can become models for the future.

At the end of the day there are many intelligent communities out there and the bigger question is are there a lot of dumb communities out there and part of that is really a question of whether or not communities take themselves seriously enough. We see a lot of communities who think they are intelligent enough purely by putting in infrastructure or say let's create a hotspot for the community and we are an intelligent community. Infrastructure only represent about 5% of what a community is about, content is about making it possible for people to become engaged and encourage that engagement.

How do communities respond to the challenge of local and economic development in a broadband economy? The municipalities are where the rubber hits the road, the challenge is at the local level and unfortunately they are the ones that are the least resourced and don't necessarily have all the answers and quite frankly innovation and other ideas come from the private sector, institutions of higher learning and citizens so there has to be that level of engagement.

These intelligent communities are a way of maintaining the high quality of life and we have to make sure to maintain this through the next generation. Intelligent communities also need to leverage the qualities of what are in their communities and the strengths that they have and in order to do that they have to discover what their strengths are.

Intelligent communities look at broadband and the role that it can play but that's not enough, we need to see the creation of a culture, the use of the broadband economy in their communities and look to business and government to stimulate those economic and political participation capabilities.

Being wired is not enough and the following criteria are critical 1) broadband infrastructure and developing a strong vision for that infrastructure; 2) knowledge base work force – to create and retain tour knowledge work force and innovation is very important as part of that criteria; 3) digital democracy and 4) advocate, brand and market your community. The whole concept of sustainability is becoming more and more important and a lot of the communities that have participating in these communities are very collaborative and in most cases it is at the grassroots where the activity occurs.

Ingrid Götzl, Head of Office of the Executive City Councilor for Urban Development, Traffic and Transport, City Hall of Vienna, Austria, gave smart guidelines with

The Example of the City of Vienna

What does e-Government not mean?

One of the main guidelines Vienna had is that e-Government does not mean to equal digitalisation with modernization nor to replace analogous bureaucracy with digital bureaucracy.

Vienna developed a mantra to make it clear to the politicians, administrative levels and officials in charge of the departments that successful e-Government is not an ICT project, neither the ICT departmental nor the operational IT department was really in charge of the major project, it is a change project and focuses on the organizational and social aspects.

You need top management both at the political and administrative level to promote this idea of e-Government whatever it might mean and to put the project in charge of the operational department., let's say it is a health project take it to the e-Health department.

We want to have a real government without the "e" no matter how you choose to access it and one of the prime issues is that e-Government is not for free, it costs a lot of money, a lot of efforts and a lot of will to change things and this is a very basic principle.

It must bring profit but the profit may be financial, time savings for customer, citizens or officials in the departments or it could be a higher quality of service.

It is a customer centered organization and this conforms to one of the major principles in Vienna that data should be the centre and not people.

Make sure that your civil servants can make use of their brains and see how their work can be done best and make good use of them as human beings not as people who work with a computer.

It means business, by introducing business thinking which is fairly new for many administrations it means that you should do it quickly if it possible.

It should be useful for all even for the so-called "refusniks" who have access but refuse to use it and it means that people who go in person to the administration finds less stressed civil servants because standard requests have been handled electronically.

It needs PR, conforming to the laws of the market, no company would put a new product out on the market without finding out who should buy it and why and implementing an advertising campaign.

e-Government is more than e-Services from a company because citizens are more than customers, they do not have a choice to go somewhere else and citizens are the owners of their administration.

David Larose, Director of the IT Department, City of Drancy, France, gave a remarkable talk on

VoIP - A Trump Card for the Municipalities

Technology for City of Drancy is not an end but a means and we need to refocus on what we are there for: to provide a service and not to help reelect a mayor or deputy or something else.

With the VoIP project Drancy showed how an administration works with citizens and not what gains could be made by reducing costs. With the telephone statistics saw which administration the people of Drancy called and having these statistics to know who called whom and how long they waited and that it had to improve call scenarios and how to serve the citizen better.

Drancy is trying to be proactive and adapt the organization all the time and it is true that there are many obstacles such as the unions which are very active and when we talk about organizational change and transformation we realize that technology is just a means and the focus is to provide a service to the citizens.

During the concluding **Q&A** part of this session the question of “balance security and privacy rights” was addressed to Nicolas Conso who emphasized that we have to take into consideration the culture and organization of each country discussed it publicly with citizens so that it may be understood, accepted and debated because if we do not have that dialog when the projects are being deployed we risk rejection of that technology and progress. The question of “whether the manner of governance should change, how and if technology encourages auto-organization” was addressed to Giancarlo Del Bufalo who replied that each administration has to be convinced that they must introduce the innovations necessary and there be a national strategy to define it and there must be a champion to foster organizational change. Luc Smet was addressed the issue of whether “the government will be perceived as looking over, what is on that card and who has accessed to that data?” Luc Smet responded that the only data on the card, in the chip in an unprotected way is the data that is visible on the outside of the card, ID data, name, ID number, municipality that issued the card. Inside there is a protected one chip linked to the certificate to authenticate and digitally sign a document.

Challenges for Innovation and R&D

The session's **moderator**, **Hervé Rannou, President of Items International**, France, welcomed the panellists and introduced the topic of the session. He underlined the session's main focus on innovation and the different ways of enabling innovation.

The chairmen of the session, Simon Phipps, Chief Open Source Officer at SUN MICROSYSTEMS, Inc, USA, [www.sun.com], introduced the overall topic of the session with a brilliant illustration of

How Innovation Gets Established in the Society?

Today, OSS is becoming more and more popular and a lot of people believe that OSS is about getting free software. However, OSS is not fundamentally about getting free software but about networks of people exploiting the fact that society has gone networked. During the last 15-20 years, the very fabric of the civil society has been disrupted by the introduction of Tim Berners-Lee's invention. The society is gradually moving away from a hub-and-spoke world, where we have governments at the centre and citizens at the periphery to a world where we have a mesh of citizens and in which government is an abstraction layer. The same is happening in the industry, which is moving from a world of business in which commerce is conducted on a hub-and-spoke basis with big players manipulating peripheral customers, to a world where businesses and the marketplace are becoming meshes of interconnected consumers and participants. This profoundly affects the worlds of innovation, because the worlds of innovation which people have become familiar with in their business and government contexts are those hub-and-spoke worlds. Much of our innovation depends on happening centrally and being devolved out of spokes. The great deal of our thinking about how to create a context for innovation revolves around that hub-and-spoke thinking. However, many of the challenges we face in stimulating innovation in Europe relate to coming to terms with the new meshed society and escaping from the paradigm of the hub-and-spoke world.

Who are the innovators in a society? Back of the beginning of the 20th Century, there were people who were producing radical new technologies that were decried by the music halls as destroying their business and disrupting their business models: those where the phonographs and the music halls did everything in their power to disrupt the business of the phonograph industry. They made sure that the phonograph industry were portrayed as pirates and the destroyers of modern culture. And these innovators discovered that they met an intense resistance from the status quo using every tool available in legislation to prevent them from proceeding in establishing their business. As time went on, the phonograph industry moved from being pirates to being gentlemen pirates to being the establishment. Today, we find that same phonograph industry using every legislative tool at their disposal to snuff out the innovation that is happening around them.

As we switch to a meshed society, innovation depends on leaving the legislative and the standardisation and the industry room for the innovators to flourish. When looking at stimulating innovation, it is all very well to look at structures of innovation and ways of stimulating individual innovation and ways of supporting individuals - but there is a need to

look deeper: We need to look back at the social contract that underlies the mechanisms that we are using to clad our innovative environment and ask ourselves whether those structures and whether those social contracts on which they are based is being effectively implemented for the meshed society as it was previously for the hub-and-spoke society. The key issue for creating an innovative environment for the 21st Century is recognising the meshed nature of the society and creating the intellectual property, the legislative and the standardisation environments to promote today's pirates that one day will become the establishment who oppress the pirates of the future.

Piero Formica, Professor of Entrepreneurship and Innovation and Dean of the International Entrepreneurship Academy **at the JÖNKÖPING UNIVERSITY**, Sweden, [www.hj.se/eng/], gave an excellent presentation on

Spotting the Next Innovation: Tuning Your Emerging Market Antenna On

Until now, a common understanding in Europe has been that the public sector must be deeply involved in financing research. However, innovation is knowledge in action – every time knowledge is put in action it results in an evolution process that gives birth to innovative solutions and start-ups. It is known that public sector driven research has produced budget-driven, risk-averse, research. Authorities like to give incentives to research in order to tie funding to their perceptions, and research projects are determined by and closely linked to the funding authorities. This must change, as there is a requirement to broaden the scope of research to include the needs and behaviours of the potential users.

This infinite game in the innovation process is a great challenge. In a world where it is a common understanding to support elite universities, it represents a particular challenge for the academia. The prestige and authority of the traditional mainstay of academic institutions are going to be eroded by the reduced importance of physical access to productive research colleagues, for the decline in communication costs have changed the localized nature of research interaction. For centuries, physical proximity to other researchers has been a great advantage for elite universities and has long been thought to increase research productivity. Advances in information technology, however, have greatly diminished the importance of physical proximity. ICT enables collaboration among researchers around the world and from different environments and has established a platform for a broader competition in research.

The second aspect is the creation of a full knowledge value chain. It is not enough to spend money on research. Research has to rely on a down stream approach towards the potential customers and users. To create a knowledge value chain reaction, it is necessary to bring all these expertise together.

The third aspect concerns the importance of "brain circulation" based on a circulation process of people. This happened for instance in the Middle Ages with the *clerici vagantes* who were scholars travelling around Europe. Nowadays, most parts of Europe are outside the international circuit of both scholars and highly educated, talented young students and graduates. Brain circulation (mobility in a physical sense that stimulates face-to-face communication) and brain waves (mobility in a virtual sense that takes advantage from new open space technologies) are the basic premises for combining competition with cooperation. Universities should embrace the creation of a co-opetitive trans-cultural and trans-disciplinary context of mobility and integration, opposed to a sheer competitive multi-cultural context of emigration and separation.

The forth aspect is the creation of a catalyst environment for the generation of "glocal" (local and global at the same time) start-ups and the creation of spin-offs through brain circulation allowing students graduating from different disciplines, cultures and from across the world to interact and to create companies. If a start-up is created by different strategic areas transaction cost can be reduced.

Finally, the corporatist administrative practices in Europe represent a very strong obstacle. The formation of "knowledge pools" (collective networked intelligence of knowledge workers forging relationships to prove the power of their business ideas and to stretch out their capabilities) will be of crucial importance. Brains circulation and knowledge pools are two important tools to be used by companies and policy makers to foster innovation.

During the following **Q&A** part of the presentation, the question raised whether money or a political decision is needed to reach these targets. Piero Formica stated that a political decision is definitely needed and that European funds are one critical factor. Especially SMEs do not invest in intangibles but in tangibles. The development of intangibles assets is mostly financed by public funding. As recipients of public funds, SMEs have to bear cost of complying with EU regulations and its administration or "delivery", as well as to afford higher transaction and compliance costs in comparisons with a regime of low taxes and low subsidies. A new taxation regime is needed in order to incite traditional small businesses to invest in intangibles.

Bror Salmelin, Head of Unit "New Working Environment" at the DG Information Society and Media of the EC, [http://europa.eu.int/information_society/index_en.htm], gave a very interesting insight in the question of

Growth and Jobs in a Service-Based Knowledge Economy:
How Can Living Labs Speed Up Innovation

The key factors for growth are based on human beings and human creativity and the suitable environment to make innovation happen. When looking at the drivers and trends in the knowledge economy, one can observe more mixed roles – professional and private – of individuals and more citizens participating in these multiple roles simultaneously in various kinds of professional and non professional communities. Some of these professional communities are well organised, such as enterprises or organisations, others are more free-flowing. Innovation is of particular importance especially regarding the fact that 70% of Europe's GDP is in services. Statistics show that only some 20% of the innovation is successful. The challenge is to increase this success rate as well as the innovation intensity.

There is a need for more creativity in the innovation process but also for all-encompassing inclusion. Responses are a technology driven research that meets demand-driven multi-disciplinary research in real world settings, multidisciplinary, connected environments for knowledge intense work, and the creation of possibilities for work communities and atypical work relations to capture the full participation of all Europeans – covering both "old" and "new" sectors by systemic innovation.

The shift from physical mobility to work and knowledge mobility is a phenomenon that represents a real opportunity. Collaboration technologies and spontaneous connectivity is one of the solutions to bring the necessary "brains" together to generate innovation. ICT provides the needed interoperability and connectivity to enable work to move around the global economy in extensive network and complex supply constellations.

Europe's growth assets are its "brains". The question is how to bring them together and to create an environment where the knowledge can meet and innovate. The more there are multidisciplinary brains in a team, the more successful breakthrough innovation occurs. To make this happen the EC started working with a network of Living Labs. The initial question has been how to bring out the innovation and the development process by collaborative and creative tools in scalable environments? The EC traditionally used test-beds, but test-beds often have not been scalable into the business models or into societal models. Living Labs are environments where a lot of industrial innovation can happen and where the innovation environment is open – but which at the same time provide clear opportunities for more closed projects.

A Living Lab is a site - very often real, virtual and networked at the same time – bringing together different kinds of technologies and creative expertise. A Living Lab does not only bring together enterprises, technologists, and researches but also the civic society to contribute to the innovation process in order to create a co–creative process which is expected to speed up the innovation process.

The paradigm shift from an industrial society to a human centred society leads to fundamentally new innovation paradigms where communities are much more placed in the centre and where the proper use of technologies can help speeding up this process by creating the innovation environments. The EC is confident that Europe can leap ahead based on its multidisciplinary and multicultural approach. The Finnish EU Presidency will launch the first set of 20 Living Labs in November this year.

The **Q&A** part of the presentation addressed the question whether Living Labs are a kind of philosophy. Bror Salmelin stressed the necessity to set the question into a certain context. Within the context of new working environments, collaboration technologies are considered as the key for many new industrial working and design paradigms. For the innovation itself these technologies enable a new approach, supporting very much open innovation models. Those technologies themselves are the fundamental underlying technology for this kind of innovation processes which requires multidisciplinary and co-creation. But as a matter of fact, seen as a concept Living Labs are a generic concept.

Tünde Kallai, Director of the Hungarian EU Project Office, presented her experience in the field of

Coordination Towards A European Network of Living Labs

Relying on a human centric approach, Living Labs are open innovation spaces and the meeting point of technologies, end-users and industries. Hungary plans to establish four new Living Labs – among those one related to the automotive sector and another one related to the rural sector. The latter one is build around the largest Hungarian research institute for agricultural engineering and is strongly supported by the of Hungarian Ministry for agriculture and rural development .

The Hungarian Government spent a lot of money to create new knowledge centres as part of the universities. However, these kind of knowledge centres do not work very well and do not generate the expected results, due to the fact that the industry is not involved in the research and innovation process.

The AMI@Work family of communities, a network of e-professionals, links people in 25 EU Member States, and beyond. The family catalyses innovation, creativity and inclusion for empowering, person-centric new working environments. AMI@Work is open to everyone willing to contribute to the shaping of the future working environments. The AMI@Work family has started in 2003, with its launching event in 2004. Up to now, more than 1,500 members joined the network.

A Living Lab is a service centre for user-driven research, development and innovation in real-life environments. It is a partnership between the civic sector (user pilots), private companies, public organisations, and the academy. Living Labs represent a system of pilot user communities, real application environment, organisation and methodology, infrastructure and tools and Living Lab expertise.

The Living Lab is a collaboration of a public-private-partnership where firms, public authorities and people work together on creating, prototyping, validating and testing new services, businesses, markets and technologies in real-life contexts, such as cities, city regions, rural areas and collaborative virtual networks between public and private players. The real-life and everyday life contexts will both stimulate and challenge research and development as public authorities and citizens will not only participate in, but also contribute to the whole innovation process.

Living Labs are designed to improve usability in the user's full context, foster the involvement of European citizens in the innovation process, bias innovations for adoption, contribute to the single European market, facilitate joint efforts in research and innovation, help European diversity to boost innovation, and use regional/local knowledge and drivers.

The European Network of Living Labs that will be launched on 21 November this year by the Finnish EU Presidency, will provide a sustainable open co-creation environment to empower citizens and workers in research and innovation of new services, products and systems. The first wave of deployment comprises approximately 15 Living Labs candidates in 11 member states to become included in a European Network. The second and third waves are expected to bring the core of the emerging network up to 50-100 Living Labs.

Benoît Müller, Director, Software Policy – Europe, Business Software Alliance, Belgium, outlined with great clarity and insight the

Principles for Software Innovation

Founded in 1988, the Business Software Alliance (BSA) is a non-profit association representing the world's leading developers of software, hardware and Internet technologies. The Business Software Alliance is represented in more than 70 countries worldwide. BSA's members comprise some of the world's largest software companies as well as European SMEs.

IT plays an important role in the competitiveness of the EU. The EU IT industry employs 2.5 million workers and comprises 365,000 businesses. The IT industry, and in particular the software industry, is among the fastest growing industries. But also the supply side is important to boost competitiveness: Companies that are using more IT on average have higher productivity growth rates. The same trend is observed in the field of e-Government, i.e., government modernisation through the combination of IT and organisational changes.

However, the EU is investing only half of the amount the U.S. is investing in ICT and innovation. Since 2000, ICT are responsible for almost half of the EU's productivity gains. Europe should invest more in innovation – especially given the fact that the innovation gap between the U.S. and the EU is further increasing. Companies that increased their R&D spending in view of declining sales have done much better than companies in a similar situation that cut R&D. Against this background, the i2010 initiative of the EU is very important and in particular its 2nd pillar proposing that Europe needs to strengthen innovation and investments in ICT.

BSA is advocating four basic principles to promote software innovation: 1) Governments should have a technology neutral policy when procuring software but also through their public policy. When procuring technologies, governments should look at all the offerings and select the solutions that are best suited for their individual situation. 2) Governments should ensure that research that is either funded or co-funded by governments is available to all and allows commercialisation in new products and services. 3) Governments should promote voluntary and industry-led standards, which have proven to be the most effective way to promote interoperability. Innovation is also a requirement for effective interoperability and interoperability can act as a catalyst for innovation if balanced with other, sometimes competing, interests such as security, time-to-market or costs. Governments have a legitimate role in pursuing interoperability among public administrations' IT infrastructures. However, it does not make sense to promote predetermined solutions that will cut out some of the solutions to interoperability. Interoperability is part of the goal and policy should focus on the goal as opposed to on the means. Policy should promote the solutions that are available in the marketplace to reach the objective of efficient public services and interoperability. 4) Governments should maintain strong intellectual property protection consistent with the principles of technology neutrality.

As stated by the EC: "The role of the private sector is to […] continually develop new products and improve skills to obtain new competitive advantage and profitability in global markets. The corresponding role of public authorities would be to assist this process, through ensuring optimal framework conditions for private firms to conduct R&D and improve their innovative performance, providing a range of incentives to increase private investment in research and innovation; ensuring the intellectual protection of new ideas, and facilitating the development of a skilled and healthy workforce."

Jesús Villasante, Head of Unit "Software Technologies and Distributed Systems" at the DG INFSO of the EC, [http://europa.eu.int/information_society/index_en.htm], clearly and concisely presented a EC's view of

Software & Services: Drivers to Innovation

Why are software and services so important for modern societies? Software is a powerful accumulator of knowledge and intelligence, and a crucial driver for innovation. In the future, electronic services will be one of the preferred ways by which companies and administrations will reach customers, the general public and citizens. Traditionally, software and service industries have been more associated with foreign regions since software is closely associated with computers; U.S. IT companies have been very influential in this sector. Today is the start of a new game and there are no winners yet. There is a fresh opportunity for Europe to play a role in this new convergent landscape. The EC strongly supports the development of software and services in Europe.

There are a number of structural changes in the software sector that lead to innovation and competition in this specific area. Furthermore, today people are more sensitive to issues such as dependability and reliability of software. Additional trends are the competition of newly emerging countries, e.g., India or China.

Software provides the added value, intelligence and innovation underlying competitive success in today's innovative markets. Some examples: today a 3G mobile phone contains some 5 million lines of software code. Mobile phones are differentiated principally through the software-enabled features. With regard to VoIP, software is the key innovation-enabling element of real-time telephony. The new routing algorithms are opening up new and largely unexplored business opportunities. In the automobile sector, software provides innovative services to the driver and enhances safety. IPTV also relies on software services to combine content, networks and devices.

Other technology sectors undergoing strong structural changes with important socio-economic impact have been the subject of policy implementation. For instance, broadband access was considered a topic not only of technological but also of economic and social importance and countries have invested in broadband not only for technological investment but also to increase the competitive position of such a country, region or company. The same happened in the sector of media and content services. The question we may ask is whether there is also a need for similar strategies for software and services.

Software and services is one of the topics addressed in the European Commission R&D programmes, and will be at the core of the ICT domain of the upcoming FP7. The ICT theme of FP7 is structured around seven Challenges, three of which address technological and four socio-economic issues. Obviously all these Challenges will require software development but the specific topic of software and services is in itself one Objective within Challenge one: "Network and service infrastructures".

The technological landscape is changing and convergence is a very powerful force. However, there is a hidden but crucial element in this convergence that is software and services. Software and services have become more and more important and this is why the 7th Framework Programme has given greater visibility and importance to this specific area.

During the following **Q&A** part of the presentation, a question was raised about whether there is a need to change the rules of IPR policy to promote the software industry. Jesús Villasante stressed that IPR is a different and very complex topic. The software sector is affected by the question of IPR and is widely discussed in the debates on the topic. IPR is one of the issues affecting software development but the importance and influence of software goes beyond the topic of IPR.

Michael Stankosky, Professor, Department of Engineering Management & Systems Engineering, George Washington University, USA, outlined the innovative concept of

The Enterprise of the Future

Having joined the academia 9 years ago, Michael Stankosky created a graduate-level programme in Knowledge Management at the George Washington University and is currently the lead professor in Knowledge Management, Information Security Management, and Marketing of Technology. Knowledge Management can be defined as leveraging relevant knowledge assets to improve efficiency, effectiveness and innovation.

The concept of the Enterprise of the Future is very similar to the concept of the Living Labs. For instance, Boeing is building the next generation Boeing 787 aircraft and to some extend "bet the company" on this aircraft. They have 1,100 partners around the world in different cultures and different time zones. Thus, Boeing is facing a lot of management issues, technology issues, process and organisational issues, social and organisational dynamic issues and many more. The "Enterprise of the Future", a research initiative within the George Washington University and supported by industries and governments, has been created to address these issues.

The goal is to create the capability for organisations to learn, innovate and transform at a pace equal to, or greater than, the speed of change in the marketplace. Meeting the competitive challenges which lie ahead requires major changes in the way people live, learn and work, both individually and organizationally.

The Enterprise of the Future is a self-organizing, adaptive, learning network of knowledge workers, aimed at mutually achieving individual and organizational goals. An Enterprise of the Future must be able to i) quickly learn and adapt to changes in the environment, ii) make enlightened business decisions, iii) quickly and effectively carry out those decisions, iv) measure the outcomes, and make adjustments, v) continuously innovate – driving the changes in the market, rather than vice versa, and vi) find value where others can't.

The model for the Enterprise of the Future is build on the four "pillars" leadership, organization, learning, and technology. Fundamentally, these four pillars have been present in every viable enterprise throughout recorded history, and will continue to be, well into the future. But how they are applied can change dramatically as we move from one era to another. Getting the transition right is critical.

Karen Karapetyan, Head of the Information Research Department of the Armenian Development Agency, Armenia, presented with devotion an innovative approach for promoting innovation in transition countries:

Distributed Science – Technological Park (D-STEP)

A technology park is a very effective model for the development and the commercialisation of new technologies. However, this model is related to high start-up and operational costs and for transition economies, the launch of a Technopark can bear various risks. At the same time, some of the transition economies have a considerable potential in R&D – but due to the mentioned risks it is not fully capitalized.

Often, companies from developed countries prefer not to invest in transition economies and thus miss the opportunity to learn about advanced technologies coming from these countries, to open up new markets for their technologies and products, and to capitalise extra benefits from joined developments of new technologies and products.

The Distributed Science – Technological Park (D-STEP) may represent a solution for technology parks in transition economies as it minimizes investment cost and risks: D-STEP is based on a model "without walls", with geographically distributed actors, units and facilities. The Technopark's Innovation Fund is an independent entity taking the final decisions on the projects' funding. The members of the Innovation Fund could be investors from different countries. D-STEP will be managed by a Technopark Council. The members of

the Technopark Council could be investors from different countries, other technology parks, and local entities. The Council could have the same members as the Innovation Fund. The Technopark's Business Centre could consist of local and foreign consulting companies and individual specialists and experts.

Joint developments are one of the distinctive features of D-STEP: The Technopark Council will consider joint applications from consortiums of at least one EU/US and at least one domestic organization or specialists group. The Technopark implements a sound multi-step approval procedure of the submitted projects. Specialists representing interested shareholders/investors can participate in this procedure from the very beginning. Each stage of the project approval will be based on the positive decision of the previous study, and therefore the project approval costs and financing risks will be minimized.

"Without walls" does not just mean the geographical dispersion of administration and management but also of the developers and facilities. The sharing of know-how and developer's ideas is not only cost effective, but also can create synergies and technical breakthroughs. The joint usage of equipment renders the purchase and installation of new equipment and the construction of new premises unnecessary. Distributed facilities and design means that the whole Technopark roof is substituted by a special management structure. Much will depend on the managers' ability to coordinate the work of the "wall-deprived" Technopark.

Kurt Sandkuhl, Professor of Information Engineering at JÖNKÖPING UNIVERSITY, Sweden, [www.hj.se/eng/], **& Per Högberg, Project Manager at Kongsberg Automotive**, Sweden, introduced the new and captivating industrial initiative

Collaborative Business Initiative (cBusiness) or
The New Business Strategy: Collaborative Lifecycle Management

Innovation in an industrial setting in the future will only be possible in the context of collaboration with partners. Innovation no longer happens within individual companies but between companies. Thus, the new strategy for businesses should be collaborative lifecycle management.

The development of a new product or service usually requires various competences including traditional service and engineering fields (electrical, mechanical, computer, material, etc.) and contributions from financial and service sectors. Even multi-national enterprises often do not have all these competences in-house. cBusiness is the vision of a radically improved business environment based on the rigorous reuse of knowledge and extreme flexibility in collaboration. cBusiness aims at the integration of all stakeholders into a flexible and dynamic organisation covering the complete lifecycle of products or services and of the associated business services.

The industry demands reduced lead time for product and service development. The capacity of developing new products and services has no limit – it is only a question of imagination. Basic infrastructure possibility is coming from concepts such as ESA (Enterprise Service Architecture) or SOA (Services-Oriented Architecture), but, basically due to a fear of sharing, such concepts have only been deployed from a technical standpoint yet.

Some companies try to create their own stand alone collaborative solution either by connecting their suppliers to their own network (VPN) or by merging with important

companies. However, both approaches are not coming up to the idea of sharing all information about products and processes into and also outside the company. The focus should be on OEM and first-tier solutions. First tiers shall provide their specific solutions to more than one OEM, by using best practice between different OEM demands, without destroying the uniqueness of the product to different OEMs.

What is important is the sharing of ideas, models, descriptions of what is happening with a product, the administration of information, the project management, as well as the production description. There is a need to use the existing knowledge that is not connected yet to improve products and services, to reduce time to the market, and to develop new products with today unknown functions.

Companies need to enable small intelligent cells and to interconnect with different developments and companies. By changing the way of business processes, we shall move from an Information Society towards a Collaborative Society.

Ray Ward, Head of City Service at Newcastle City Council, UK, presented with enthusiasm an ambitious national project and innovation from a public sector context:

FAME - A Practical Framework for Working in Innovative Collaborative Environments

Key challenges for innovation and R&D are how to get the people involved to understand the transformations in each others worlds and how to ensure collaboration is established effectively.

FAME is the UK e-Government programme for multi-agency environments. A couple of years ago, the UK Government developed a range of projects to enable e-access to public services and recognised that in introducing this programme it needed to create a sharper focus on the need for collaboration. As a result, the national programme FAME has been established to help collaboration occur.

FAME is an approach which seeks to establish a way forward for 'joining-up' multi-service, multi-agency and multi-authority collaboration. It is grounded in the challenges of meeting the requirements of practice, management and ICT and it has learning and collaborative partnership at its heart. FAME is a real framework for multi agency environments.

FAME has developed a framework for use by local authorities and their partners to support the implementation of multi-agency working. The nine pieces of the framework can be visualised as pieces of this jigsaw. Each piece has supporting text that can be used on its own or cross referenced to the other pieces. There is an outer shell – the "How-to-guide" providing guidance for managing change projects. The Readiness Assessment Toolkit looks at preparedness under each heading of each piece of the jigsaw.

The how-to-guide addresses questions like how to conceive and justify collaborative initiation or how to design and build the new partnership system. Another piece in the jigsaw is the scoping statement looking at the drivers for change, the actors involved, the outcomes to be achieved, the processes and IT needed, and the organisation of the partnership.

Another piece of the jigsaw is looking at "legal powers and responsibilities". Multi agency working is spreading widely but has a complex policy and legal basis. There are both legal and practice limitations that give the practical limits to the extent of information sharing. On

the one hand there is great pressure to share information more widely but on the other there are complicated legal issue to be understood which may involve scanning legislation, guidance and codes of practice.

Information sharing is the key of FAME. Information sharing has what might be termed soft elements and hard elements. The soft elements include the rhetoric, the tasks, the practitioner perceptions and attitudes. The hard elements include Information sharing protocols, the need for Information managers and training issues. Governance is a very important issue in the creation of a collaborative environment: People need to understand the government arrangements and the models they are working in, but also information governance. Identity management is another significant piece, addressing issues such as authentication, identity and relationships, registers and registrars, publication and consent, and data processors and data controllers. Further pieces of FAME are “Infrastructure”, “Messages, events and transactions”, “Federation” and “Sustainability”.

A range of tools has been developed and set on a portal. This FAME demonstrator tool allows to move from early simulations and animations of proposed approaches to the monitoring and evaluation of real systems as they are developed and deployed.

Pierre Laffitte, Senator & President of Sophia Antipolis Foundation, France, briefly outlined some of the today’s most important

R&D Priorities

One year after they were given the official approval by the French government, the French competitiveness clusters (pôles de compétitivité) are fully operational. The projects they are working on are tackling some of the greatest challenges of our today’s economy, such as ICT, energy, healthcare, biotechnology, aeronautics and transport.

To intensify and support their international development, the Sophia Antipolis Foundation is hosting the Second Annual Forum on Competitiveness Clusters on 17 November 2006. The Forum aims at measuring the international activities of the French clusters and make practical use of best practice in this area based on case studies from clusters already operating in Europe. Another objective is to encourage more of these kinds of international co-operative programmes by introducing potential international partners to appropriate French clusters.

There is a need to focus R&D activities more effectively on climate change goals. The climate change is currently one of the most important fields of R&D if we want to avoid the drastic change to come within the next 50 years. The volume of R&D that is necessary tackle this issue is dramatically high. However, ICT and science can make an important contribution to energy transition.

Challenges for a More Efficient Economy and Daily e-Services

Moderator, **Sergio Antocicco, Chairman Intug & President Anuit,** Italy, welcomed the participants and opened the session.

As chair, **David Wood, Councilor, Newcastle upon Tyne City Council,** UK, brilliantly introduced the topic of the session.

Newcastle's economy was based on ship building and heavy engineering and in the 80s when that industry collapsed we were left with lots of unemployed people with skills that didn't apply to the workplace anymore and what we had to do was change our way of thinking for the citizens.

Newcastle is in the Northeast of England, the birthplace of the industrial revolution and was quite pleased to be at the forefront of the technological revolution. It is a very wired up city in fact every citizen in the city centre will be able to access wireless technology free of charge in corporation with BT, collaboration and working together is the key.

Paolo Baldelli, President of POSTELINK, Italy, [www.poste.it], demonstrated with knowledge some fascinating examples about

Citizens and Social Government Agencies - A New Approach to Relationship Management

There is a need for a new relationship between citizens and government and Postelink has integrated a contact centre made for some government agencies confronting this problem.

The Italian Post is the largest company in Italy with 150,000 people and last year was the first year that financial services took over the traditional postal services.

Currently contact between citizens and government is very face-to-face based partially driven by an expectation of better services through this channel but also by citizens' desires as they view it as the key priority for government investment.

The second most popular contact method is telephone which indicates that personal contact is culturally important which will be a challenge on driving more technology based communication.

Thirdly, in most countries the youth and those with third-based education are adopting Internet communication more readily; this generational divide emphasizes the need for a combination of channels to meet citizens' needs.

Many people contact the same administration a number of times and don't often reach the same contact person and as a result joined-up government is not seen as that effective even by those who have their details recalled, suggesting that recall of details is only part of that.

The key point of the contact integration centre is the realization of CRM and the difficulty was to tailor it into this particular project and has been done so to be citizen-centric.

The expected income of the contact integration centre is 6 million EUR and it has managed 9 million inbound calls, 7 million of which are handled by operators, 300 work stations are available and a workforce of 500 operators are on 7 sites.

Danilo Oreste Broggi, Chief Executive Officer, CONSIP SpA, Italy, [www.consip.it], provided a remarkable and insightful presentation on

The Italian eProcurement Experience

CONSIP is a limited company of the Italian Ministry of Economy and Finance (MEF) that has been providing, since 1997, consultancy on services, projects, organization and technology for the Ministry's innovation.

In 2001 CONSIP was entitled by the Ministry to develop the Program on the Rationalization of public spending and to handle the Italian e-procurement system. The main aim is to support economic development and Public Administration's modernization.

The e-Procurement system offers three main procurement tools: e-shops, online auctions and the marketplace, in order to achieve efficiency, service quality and process simplification, according to specific strategies.

Today, the Program and its website allows Public Administration to handle their purchases on line and to gain, at the same time, cost and time reduction.

After five years of activity one of the major results achieved is the migration of a huge amount of public processes and transactions to an electronic platform, the growing number of users and the greater and greater offer of goods and services.

Luca De Marchi, Project Manager e-Learning, Azienda ULSS 8 Asolo, Italy, brilliantly shared the pioneer advancements of

The Support of eHealth Education for Social Inclusion

Azienda ULSS 8 Asolo is a health public organization in the Veneto Region that supplies sanitary services with the aim of satisfying the health needs coming from a population of about 240,000 citizens.

Education and promotion of health through the population are is one of the institutional tasks and it contributes to improve health quality, accessibility and sustainability by reducing exclusion, marginalisation and disadvantage that social systems can present with health education activities for all the population in the territory, a community composed of 10% immigrants, 20% old people, and 12% young people at school age.

The health education topics being addresses are social cohesion, optimising the functionality of the health system, available socio-sanitary services and reducing social costs related to incorrect behaviours and lifestyles.

Technology is a health education instrument and in consequence an instrument of social inclusion.

One of the tools put in place is that of e-Health Pockets, small multimedia content about specific topics: correct behaviours in case of adverse or unexpected events, correct lifestyles access to socio-sanitary services.

In order to promote the e-Health Pockets we are spreading the word to the population and giving specific attention to the message with a multi-channel approach and interaction and they are available on multiple supports, downloadable for streaming for any device.

Citizens may choose the preferred device in using available contents situation and device address to the best communicative modality.

To make the message attractive and effective content is proposed through animated stories made also using 3D graphics.

Nitya L. Karmakar, Professor, University of Western Sydney, Australia, inspired with his talk on

The Digital Divide in the era of e-Commerce and Knowledge-Based Economy

Almost two thirds of the world population doesn't have telephone access and we have the responsibility and must consider how we can help.

Digital divide is the gap among countries with regard both to their opportunities to access ICT in general and to their use of web technology particularly for a wide variety of activities. In every country there is a digital divide and the reasons for it include: no possession of computers and network connections, lack of elementary digital experience, digital skills, and significant ICT usage opportunities. There are two kinds of digital divide: one between citizens in industrialized countries and one between industrialized countries and developing countries.

According to the UN and International Telecommunication Union (ITU) reports, more than 90% of all Internet hosts are in developed countries where only 15% of the world's population resides. In November 2003 the ITU published an interesting finding of all 178 countries and ranked each country (called the Digital Access Index) based on the affordability of Internet access, the proportion of Internet users with high-speed connections and raw availability of bandwidth. The results were Sweden coming out on top and Nigeria on bottom.

In order to bridge the digital divide to remote communities we need to foster economic strength, self-reliance, political democracy, globalisation through innovation, networking through ICT integrating all fields of knowledge, development not at the cost destroying environment, zero tolerant for corruption, online business and education, establishment of some form of e-Government program, cheaper mobile phones to overcome the poor landline networks, mass computer education and training and proper utilization of overseas aids.

With the advent of ICT access, knowledge has become a potent force for transforming social, economic and political life globally as well as narrowing the digital divide. One third of the world could be left behind if more is not done to provide developing countries with the skills, knowledge, and access to markets necessary to compete. Developed countries must do more to help alleviate the digital divide and poverty. The commitment to debt relief of the poorest African countries is undoubtedly a positive step.

Vadim Lifanov, Founder & President, PDS LTD, Ukraine, presented an amazing project

The Project "Global Knowledge & Skills Exchange"

Human resources, knowledge and skills become the main factor in effective business organisation. It represents both spending and a source of income generation. Progress in technique, new production technologies and the implementation of informational technologies in all human spheres results in an increase of professionally mobile people.

Companies want to find and employ the right knowledge and skills in the global labour market but they do not wish to waste time and financial resources on training or retraining the employee.

PDS offers an innovative way to create a stock of knowledge and skills, operating on the sources, information, human resources etc. which have been implemented in 24 separate projects. PDS created a special tool to find the ideal companies or people on the Internet and get in touch with others by searching for the knowledge not the people.

Knowledge & Skills Exchange provides free flow of knowledge across the planet; the possibility to search for not only one or several employees but for entire groups; and the creation of a global systemized knowledge and skills data base; while at the same time protecting rights and interests of the exchanging participants.

Requests can be formulated not only by standard parameters, such as sphere of work, experience, age, knowledge of languages etc, but the system allows the users to create the parameters they are interested in, e.g., motivation of the candidate, aggressions level, sincerity level and many more.

A company can create the profile of the ideal employee the company is looking for (experience, psychological characteristics, importance of certain criteria, etc). The system then enters the search mode and automatically posts the advertisement about the vacancy on websites and even newspapers and magazines. The system automatically selects and delivers CVs from all job placement websites. Additionally candidates can call and send their CV. The speed of the system is 25 CV per minute.

At the all stages of process and according to the given time schedule, the search system will independently search for people, automatically deliver new human resources, select them, do tests and questionnaires, and range the best applicants until the vacancy will be closed.

Cristina Martinez Gonzalez, ICT for Enterprise Networking Unit of the DG Information Society of the EC, [http://europa.eu.int/information_society/index_en.htm], presented with great knowledge

Challenges for SMEs in the New Economy

[The summary will be available soon.]
The Power Point presentation is already available on our web site

Simon Roberson, Regional Manager, North East, BT, UK, gave a passionate talk on

Moving SMEs into the e-Economy

North East has deployed projects on working with regional partners in North East England trying to drive up take-up and the first project done with the County of Northumberland covers rural areas and some former coal fields, industrial areas – eEnabling Northumberland SMEs. The idea was to provide a suite of hosted business applications that could be used on a free trial basis. The target was to involve 75 SMEs, a fairly small number but the idea was not to go very wide to create a number of case studies and examples to be used to encourage others.

Some good examples of ICT use were found and showed that more companies were really not using it at all and that public sector e-Procurement can be a major driver in getting SMEs to adopt ICT. Companies went from complete refusal overnight to saying why can't we have it faster, sooner.

The things that did not work were making the same offer to all firms irrespective of what business sector they were in. Offering them free use of software actually was ineffective because if I give you something for free you will probably say thank you very much but you won't use it unless you have some real reason to do so. The hosted software was far too powerful, the needs of the SMEs were far simpler, things around anti-virus protection, data backup online, those kinds of things and much simpler e-Business software. Also while public sector e-Procurement can be a very effective driver it needs to be properly implemented and systems designed by the public sector can be too complex for the very smallest of firms, the firms we are talking about here are below the level where they would have a European official journal tender they are contracting for cutting the grass at the local community centre and that kind of thing.

A second project, "Catalyst", was created to build on this learning. Catalyst was funded by the regional development agency and operated across the North East region. To address some of the particular problems, multiple suppliers were recruited so rather than having one particular piece of software which everyone was expected to use a set of suppliers was employed most of whom are small local service based firms which can do things like develop an individual website or implement a specific e-Commerce solution.

The SMEs have to commit at least 20% of the project funding and in some cases in fact spend more so this gives them real engagement with the project and they are not getting something for free so they want value for money and they make use of it.

The projects are much simpler and much more varied, many of them are simply putting up brochure websites or doing online sales at the simplest firms, some are firms that have already got to that stage and are moving on to more complex integration with their systems and 86 projects have been completed.

The reason the project was called "Catalyst" was because it is what we see the real value the public sector can bring to these type of projects. The public sector can see the advantages of using ICT in small businesses but needs to work with the individual businesses to make sure they implement things that meet their needs.

Francesco Nachira, ICT for Enterprise Networking, Head of Sector "Technologies for Digital Ecosystems", DG Infso and Media of the European Commission [http://europa.eu.int/information_society/index_en.htm], gave a fascinating presentation on

The Convergence Between the Business and Digital Ecosystem and Co-evolution

We have the co-evolution between the digital implementation, aspects, application and the economical ecosystems and we know that SMEs have limited resources and face many problems with the global world so they have problems to access the global value chain, knowledge, specific services that are more and more needed, such as legal services to sell something in another country and SMEs have difficulties to adopt new technology, business models and work organization.

We are now faced with two digital divides, the geographical one and small versus large enterprise, so what is the future for SMEs, is just hoping that they become big one day enough? On the ICT ladder, some SMEs work only with e-mail, some only have websites and others use e-Commerce and e-Business tools that use software integration and we don't have at the moment SMEs that are working in the worker organization environment for example outsourcing.

The next step that is appearing now is crowd sourcing, so the possibilities to look around the world and to create in real-time a network to find the competences required. We need 1) networks in order to enable crowd sourcing; 2) a networkers' instrument to enable the global dynamic connection and aggregation of business and 3) a way to share the knowledge, ideas and capacity.

How do we create what we call in the Lisbon objectives a favourable environment to innovation development, what are the conditions for attracting and developing new ideas? The answer is new business organizational models, attracting human capital in connecting new activities. Of course we need several conditions such as business and financial, human capital and the practices. We can see in some emerging countries how important human capital is.

In theory it seems to be an impossible mission however we saw that there is emergence of unexpected paradigm that is based on collective activity and participation and in the past they taught us complex products and services can only be built by large corporations and the EC sees that a lot of complex things are being produced by an informal and amorphous network of people.

The advancements in ICT will occur when you exploit the power of networking, when the advancements are made by people and businesses working together and the technology is just an instrument.

Eikazu Niwano, Senior Research Engineer, Service Integration Laboratories, NTT Corporation, Japan, provided a great and particularly interesting expert view of

A Business Model on eID and Multi-Applications card

The demand for smart cards has grown very rapidly and there are many types: eID, social security, health, drive's license, SIM card in telecom, ticketing in transportation and we too so

many in our wallets. Thus in order to reduce that number a multi-application smart card and management system is required.

Several trends of multi-application smart card management system are: 1) the card issuer and service provider which purchases the smarts cards and operates them; 2) the card issuer and service provider have multiple applications in one card; 3) the card issuer and service provider are two different entities but the service providers ask the card issuer to install the application into their smart cards. 4) the card issuer and service provider are completely separate and the service provider can download the applications on the Internet or mobile networks by themselves.

We haven't reached this last stage due to costs, the public sector doesn't have the resources to deploy the eID card especially if it is high capacity and high priced and the telecomm sector are seeking very low prices. While the card issuer wishes to recover smart card related costs and the service provider would like to provide their smart card services economically, the card holder would like to get the smart card without any charge.

The solution is card cost sharing with the service providers by applying a multi-application smart card management system. An advanced business model would be that the card Issuer can rent/sell to some third entity that has already had relationship with many service providers and the card issuer can get a royalty from the operator according to the number of service providers.

Card cost has become a critical issue in many sectors such as government, telecom, the framework of lending tenant of smart card would be a good solution to the problem. In Japan 1 million eID cards have been distributed and 102 municipalities or cites have deployed multi-application smart card and management system however the problem is that they have not collaborated with private entities.

We suspect that this model will be adopted in the very near future in the e-Government and telecom sectors.

Philippe Scheimann, CEO, Ayala Alternative Organizational Consulting, Israel, shared the great and very interesting perspective on

ICT for Peace

There is a need to find a multiple win-win solution in businesses as well as in areas of violence. Ayala is working on process improvement taking into account 3 dimensions: People, Organization and ICT. Lessons are drawn from:

- Consulting projects in Collaboration, Requirements Management & Information Management in Hi Tech companies
- Implementation of information infrastructures for Grass root peace initiatives (e.g., AllinPeace or BudoforPeace)

People dimension: When talking about process such as product development, there is constant negotiation between people involved. The suggested guidelines are the following: know yourself and your own needs, assume goodwill and if there is doubt then you have to gather information, as much as possible about the other.

Organization dimension: Methodologies used for analysing organizations and implementing relevant ICT are the following: Transaction cost theory, teams markets and systems (Social Study of Information Systems of Professor Ciborra) which analyse the transactions in terms of natural and behavioural complexity and Requirements Management in collaboration with Golden Solutions.

ICT dimension: When it comes to ICT, we recommend to make good use of social software that consists of simple tools with immediate implementation for managing interactions and collaboration between people.

In conclusion, when dealing with negotiations, we need to be as creative as possible. When working with people, take into account issues of respect & honour, make sure you have a high quality management and when dealing with ICT, keep it simple.

Challenges for e-Health

The session's **chair**, **Edouard Varvarian, Managing Director of idDOON**, France, [www.iddoon.com], welcomed the participants and introduced the topic of the session by raising some of the principal challenges the healthcare sector is facing today: The population aging has a large effect on the healthcare sector. Today, more than 35% of the European population are aged 60 years and over. At the same time the number of healthcare practitioners is decreasing. Medical treatment protocols are becoming more complex and more costly, while patients are becoming more demanding. Costs for medical treatments are increasing all over the world (e.g., in the U.S. 40% of the GDP). There is a need to counteract these trends – otherwise future generations might not be able to get access to basic cares.

ICT contributes to meeting some of these challenges. For instance, Electronic Medical Records can improve patient safety by reducing medical errors. Moreover, EMR increase health information sharing between providers, laboratories, pharmacies, and patients. EMR also facilitate patients' transition between health care settings and reduces duplicative and unnecessary testing. Further examples are tele-healthcare, providing an Internet based health monitoring and recording system through which individuals will be able to monitor their own and their family's health status, and digital imaging for healthcare which increases diagnostic practice quality.

The **moderator** of the session, **Patrice Cristofini, Healthcare Director at Atos Origin**, France, welcomed the participants and panellists and conducted the session with great knowledge in the subject matter.

Jean-François Penciolelli, Director Business Development, Global Health Sciences, ORACLE CORPORATION, [www.oracle.com], gave a captivating presentation of

Oracle in the Healthcare and Life Sciences Industry

Oracle has a strong position in the healthcare and life sciences market: The company is the leading worldwide database provider for payers and hospitals. 50-80% of all European healthcare payers and providers use Oracle technology. More than 300 leading healthcare providers and more than 80 healthcare payers run Oracle applications. Moreover, the company is the leading provider of clinical trial management systems and sales force automation in life sciences. 15 of the top 20 pharma companies use Oracle Clinical and Siebel CRM and SFA. Oracle is the only company to offer a health data repository and integration platform based on the open standard HL7 v3 Reference Information Model (RIM).

The different EHR projects and related regional and national programmes that are currently under development all over the world have all the same approach. Their five main functional elements are i) privacy and consent, ii) the identification of healthcare professionals, iii) the identification of patients, iv) clinical document registry and repository, and v) clinical data repository. This is the type of structure system integrators and software vendors are trying to

set up. Healthcare organizations spend 80% of their time and money on infrastructure. The IT industry is ready to provide this type of framework, where healthcare organizations adopt an enterprise data model, minimize patient record duplication, and align terminology and data coding systems. An important aspect to ensure that all the systems will be integrated in a unique framework is the certification process.

There are lessons to be learned from small countries like Croatia and Slovenia or regions like Andalusia. Andalusia did for 8 million citizens the most impressive health care system in the world. National programmes might not be the best way to do it. There is a need for a framework, standards and governments at the national level, but the development of healthcare systems could be done best on a regional level.

The **Q&A** part of the presentation addressed the question whether there are any differences between Europe and the U.S. as regards current developments in the healthcare sector. Jean-François Penciolelli stated that the developments are quite the same. Healthcare is an emerging market and there is a lot to learn. However, one lesson learned concerns the small countries and regions which can drive such projects much more effectively when having the money and the capacity needed.

Robert Picard, Minefi CGTI, French Ministry of Industry, France, provided a very interesting insight in

French Initiatives in e-Health: New Dialogues for New Challenges

All OECD countries are facing the same challenges in the healthcare sector, namely increasing expenses, due to the growing number of elderly people and to improved medical care. A large number of people having suffered from grave illness, who would have died a few years ago, can be saved today and require care.

Something really new is that politicians realize that this tendency is a long-term one. The measures to be taken will deeply impact the way we will manage healthcare. People are more and more becoming aware that ICT could contribute to this change. However, how e-Health will work still remains a question. Many experiences have been carried out at regional, national, and European levels. But as far as the e-Health market is concerned, the results are still poor.

The French Government took several structural decisions in the field of e-Healt – some a couple of years ago with the smart card Sesam-Vitale, another one very recently with the French EHR (Dossier Médical Personnel or DMP). However, the French Government realized new ways of cooperation between the policy makers, the administrations, and the economical actors are needed in order to tackle the e-Health issue.

Several high level meetings, chaired by the Minister for Health and the Minister for Industry have taken place since the end of 2005. Both Ministers have given mandate to the CGTI, a French council for ICT matters chaired by the Minister of Industry, to work with the French Authority for Health on this subject. The question to be addressed through this mission can be summarized as follows: “What are the obstacles preventing the development of high value service providers and manufacturers, and the delivery of advanced industrial services to the French Health sector? “

The mission is still ongoing, but gave the opportunity to meet a large number of companies, from all sizes and all nationalities. As these meetings, co-chaired by representatives of both ministries, were open and face to face, they represented the opportunity to establish many contacts and get interesting insights from all parties, including inside the private sector. The final objective is to deliver to policy makers a shared vision about strength and weakness of the French market, with recommendations emerging from the actors themselves.

Yannick Motel, Vice President of Lessis, France, presented with enthusiasm, energy and knowledge

A National Industry Association Perspective for Global Health ICTs

LESISS (Les Entreprises Des Systèmes d'Information Sanitaires et Sociaux) is a non-profit organization founded in December 2004 and gathering the main Health Information Systems' businesses. More than 70 of LESISS' members are belonging to the large spectrum of Health IT providers (SMEs, major firms, world leaders). The work of LESISS is motivated by the convergence between acute care, ambulatory care and social issues.

The organisation established a strong network of relationships which includes the French government – with a focus on the French Ministry of Industry, other public services, but also institutions of the EU, representatives of the French National Assembly, industrials' organization and patients' associations.

Through its members' expertise, LESISS provides support and advice for the changes that are essential to enable the French health-service system to adapt. Properly-used information technology effectively contributes to the necessary coordination of health-care services, the improvement of medical practices and the reduced risk of lost opportunity for health-care beneficiaries, as well as contributing to more efficient allocation of public funds.

The implications of an aging population on the health sector are dramatic and requires new solutions: In 1999, 21% of the population was aged over 60; in 2035, 33% of the population will be aged over 60; and in 2050, half of the population will be aged over 60 years.

Parts of the solution will come from HITs. This is also reflected by some recent developments in the French health-service system, such as the medicalization of health information systems, the recently established collaborative organization for cancer, the development of IT in emergency departments, the emergence of telecare /homecare applications, and the French Electronic Health Record (Dossier Médical Personnel -DMP).

In May 2006, LESISS published a position paper on the Personal Healthcare Records and the urgency of returning to a development approach shared by all actors.

In order to succeed, the deployment of HITs must be considered as a global issue and as an industrial project. The national market is too small for the level of investment required. HITs have to meet local needs and integrate to legacy systems as well as complies with local regulations. A joint effort with other European industries can consolidate the local industry.

Dr. Sultan Bahabri, MD, Counsel, King Faisal Specialist Hospital & Research Centre-Jeddah, Saudi Arabia, provided a fascinating presentation on the shift

From e-Health to Knowledge Management – The Gap

The healthcare industry is, to some extend, an industry that missed the right start. However, there are some current trends in the healthcare sector that will change healthcare as we know it today and necessitates reformation of the healthcare sector across the globe. These trends are specifically the new patient power, an increased focus on outcome, performance and key performance indicators, and globalisation – in the sense that healthcare is not delivered on the spot. Increased transparency and availability of medical data leads to a fundamental shift in the demand for health services through the empowerment of patients.

In the past, healthcare always focused on management; this is moving to other areas. Some of the techniques used in e-Healthcare have been very successful in the field of disease control. The data collection for epidemiological surveillance is very costly and consumes large parts of the "health information" budgets in developing countries. The Onchocerciasis project in West Africa demonstrated that telesurveillance is a viable alternative for some types of data collection.

There is a considerable increase in telesurveillance and telemonitoring services in medical care today. Reported and measured benefits are reduced costs of the care and the improved efficiency of delivering care and there is greater convenience for the patient and the care provider. The boom in sensor technology will also have a significant impact on healthcare.

Today, medical literature is increasingly available at any time and at very low prices. This increasing availability of literature requires a re-definition of medical libraries. There is more and more support for the movement of "Open Access" for developing countries with a focus on "peer reviews".

Some of the challenges, e-Health is facing today are the slow progress, interoperable standards, a lack of acceptance by healthcare professionals, and privacy considerations. Furthermore, there is an important shift form the passive patient to the active, well-informed and demanding patient.

Healthcare has moved from being a profession, characterized by a doctor/patient relationship, to a service, characterized by a doctor/provider relationship, and than to an industry, characterized by a patient/provider/pay relationship. Many other industries had already witnessed similar transitions, e.g., the travel, financial, food, or transportation industry. As a matter of course, basic components remain important, i.e. good medical skills in the case of healthcare, but patients will have a much deeper impact on the service. e-Health is not about technology but about the behaviours behind.

Prof Louis Lareng, Director of the European Institute of Telemedecine, France, gave a passionate talk about

Dealing with the Digital Divide in the Healthcare System

Digital breakthroughs have facilitated the convergence of communication technologies. These new technologies applied to healthcare remain a double-edged sword: On the one hand, they enable major progress, but on the other hand they also lead to a severe disparity

gap between privileged and less privileged areas. Convergence of information systems within the healthcare system itself cannot be realised without a social construct in the technical, economic, political, regulatory and social fields.

Telemedicine, officially recognized by the French law passed on 13 August 2004 dealing with health insurance, will always be regarded as a real shift of paradigm in medical practice with major achievements such as the pooling of competences, the facilitation of multidisciplinary medical practices, the exchange and sharing of information on patients and the transfer of know-how between health professionals.

A Telemedicine Network linking 50 public and private organisations, general practitioners, the Regional Union of Medical Doctors, the University Paul Sabatier and the European Institute of Telemedicine has been set up in the French Midi-Pyrenees Region. Experience at all levels has evidenced one of the major assets of telemedicine: It improves access to medical care for all citizens anywhere on the territory due to a tight networking of the territory.

The Personal Medical File (Electronic Patient Records) introduced by the above-mentioned Law is in line with this approach, as it helps to coordinate care and to ensure its continuity. It is meant to make patients' data comprehensive, clear and transferable.

The impact of the Personal Medical File (Electronic Patient Records) on health exchanges will largely influence professional practices and will build a continuity between telemedicine and various information systems.

The prevailing concept to-date is to have converging information on patients, which means that it is necessary to redesign the organisation of the healthcare system. It also accounts for the fact that telemedicine and the creation of the Personal Medical File are jointly stated in the Law passed in 2004.

Telemedicine and Electronic Patient Records are an unquestionable convergence factor aiming at reducing the digital divide in the healthcare sector. This is why the introduction of the Personal Medical File in the Midi-Pyrenees region has been initiated in compliance with the current evolution of the Midi-Pyrenees regional telemedicine network.

The **Q&A** part of the presentation referred to the question about the sociological evolution of patients in this changing environment. Prof Lareng pointed to the fact that several years ago, the only way for people to get information about their health shape has been to go to a doctor. The doctor told them what the symptoms mean and what the patient is suffering from. Today, the Internet has become the best way to look for information and patients inform themselves about specific symptoms before going to the doctor. Access to information has become much easier and the citizen became the centre of information. Health care systems have to turn towards the patient in order to handle these medical information; this is one reason for Electronic Patient Records being created by the medical practitioners together with the patient.

Dr. Mario Po, Head of Administrative Office, Azienda ULSS 8 Asolo, Italy, presented some outstanding projects realised in a public healthcare institution:

A Local ICT Health System in Italy - Some Applications on Clinical Repository, Documents Management and Logistic Drug Management with RFID Solutions

The human body is a complex system consisting in many sub-systems. Healthcare systems are complex too and they often need brave solutions. Nowadays more than yesterday, due to scientific, technological, professional, economic, organizational and communicational reasons.

A clinical data repository was created gathering both in-patients and out-patients data of the two hospitals belonging to the public healthcare institution Azienda ULSS n 8 di. Asolo. As regards in-patients, the repository includes also the medical records which are archived in digital form and available for online consultation. Thanks to this solution, doctors can consult records at every moment, even during the night, from a PC in their service department, in an easier and faster way than using paper records.

The Management of the out-patients data is centred on the ambulatory electronic chart connected to the central archives and shared through different ambulatories in different sites of the healthcare institution. This solution improves accessibility to the patients' clinical history and consents an automatic printing of medical prescriptions (drugs and proceedings).

As regards document accessibility, patients can consult their medical records and reports of proceedings/examinations as PDF-documents via the web, and thus can have consultants from every part of the world. Due to a knowledge management software, it is possible to work with some new rule evolution and reasoning systems for a syntactic metadata search and semantic search in the data repository. The clinical digital archive is a strategic focus of the institution's business process management.

The sanitary logistics plan applied to the clinical government required a complete redefinition of the logistics and informatics of the sanitary and economic assets supplying process. In order to manage the digital data transmission of the therapeutic prescription of the patient, of the drugs demands from the units to the warehouse centre, as well as of the drainage by Pocket PC of the consumptions for every patient, any drugs logistic step (from the arrival to the common warehouse to the drugs administering to the patient) is supported by radio frequency, that, together with the digital solutions introduced, results in a clinician-managerial integrated system.

In the blood disease unit of the healthcare institution an application that uses RFID and WiFi technologies, enables an optimal management of a patient's immuno-transfusional blood by a tag bracelet.

The following **Q&A** part of the presentation addressed the questions about improvements in terms of access to the archived data and the positive outcomes of the combination of logistics and ICT. The representative of the health institution stressed the faster access to information that are now available 24/24h. The combination of an improved logistics system and ICT considerably decreased cost and improved the quality of the data.

Bruno Salgues, Professor of Marketing, Design & Strategy, National Institute of Telecommunications INT, France, outlined some interesting thoughts about

e-Health and Real Life

e-Health is a term covering a wide range of information and communication technologies activities, that also includes the aspect of e-Inclusion.

The concept of e-Health includes tele-expertise, tele-consultation tele-cooperation, and medical data transfer, but also multi-conferences supporting isolated people, other physicians and the diffusion of good practise. Tele-supervision allows to provide distant health services for prevention using medical equipment. e-Health can provide distant health services activities at home or on long distance transportation systems. e-Health also refers to the electronic management of health institutions, including for instance health identity cards, social system cards, software for hospital management, and the acquisition, the storage management and the sharing of required medical data.

However, telemedicine is not a physician in New York and a patient in Strasbourg. It is neither just adding a webcam to a PC to enable physicians to talk together. This is only necessary communication.

The various existing networks offer lots of possibilities for telemedicine. However, it is necessary to develop applications that are accessible via all types of networks, e.g., mobile, fixed, high-speed etc. in order to reach each and every person in his or her daily life environment.

Currently there are two concepts: Universal Personal Telephony, a unique access number with authentication, identification and authorization system, and Global Multimedia Mobility.

Examples for ICT-enabled developments in the telemedicine sector are: Electronic Medical Records, medical databases, the Australian example of a clinical path manager, medical imaging, Local Area Networks using Body Area Networks, or the use of mobile telephones and Short Message Services. The Canadian Telenephro project, providing home care and monitoring for chronic renal patients, uses SMS reminders (tele-compliance) and allows patients to access their medical records via their mobile phones. A project in South Africa uses SMS to alert tuberculosis patients to take their medication. The initiative has led to a significant increase in the recovery rate of patients and could lead to savings for healthcare authorities. Other initiatives are using Micro-Electro-Mechanical System (MEMS) to capture information, such as body temperature or a patient's pressure. Moreover, first steps towards an artificial pancreas have been done by providing an insulin pump that is implanted just under the skin, usually in the abdominal area, and that delivers insulin into the peritoneal cavity.

Pliny Allen Porter, Managing Partner, Associated International Information and Technology Ltd, MaceCorp Limited, UK, gave an remarkable presentation of the

Benefits of Home Health Care and Elderly Monitoring

"Home" telecare is utilised for recovering adults and children, chronically ill patients, elderly persons and elderly with health monitoring, special illnesses (specialists monitoring),

communication (deaf/non-national languages), special small clinic/home groups, selected longer term monitoring (e.g., early Alzheimer's) and remote locations.

Home telecare maintains the patient's independence with contact capability and provides more specialised contact with patients or elderly people. It also improves the two-way service between patient and doctor or elderly and carer and makes visits more effective by pre-screening. Home telecare reduces costs and improves quality time for all parties. It improves the life style for both patients and providers and visibly extends life expectancy.

Beneficiaries of home telecare are the doctor, who spends 80% of his/her time on long term care; the nurse, who has to prepare, prioritise and visit; the hospital, who needs 60% of beds for long term conditions; the public sector, who often pays for the total service; the private sector, whose quality and costs are critical; the family, who is involved, assisting or supporting the patient or the elderly; the patient or the elderly being cared for; and finally the ability to manage "the way things are" in the future.

Today, 3.1% of a company's productivity is lost due to illness. As the average life expectancy is rising there are more elderly having illnesses and more chronic illnesses. This leads to an increasing number patients per doctors/nurses (1990: 10.7 patients/doctor; 2005:19.5 patients/doctor), and an increasing demand for hospital beds, and finally to higher waiting times to see doctors. There are not enough doctors, carers, nurses, and specialists to assist aging patient growth.

Moreover, more and more elderly are moving to the country side, which leads to an increased rural demand for health care. The total healthcare costs are rising for primary care services, local health authorities and regional (hospital) services.

Even if benefit costs levels vary dependent upon time, location and provider, experimentations have shown high benefits resulting from home healthcare monitoring: 1 of 4 heart attack patient is re-hospitalised in 12 weeks following an attack. Telecare at home, testing 4 vital signs per day, with more frequent monitoring increases the life expectancy and decreases second attacks for heart attack patients. It lowers the total costs and decreases hospital bed use for re-hospitalisation. Additionally, the tested patients have been pleased to be involved with their own care.

Furthermore, home healthcare monitoring decreases accident and emergency admissions, hospitalisation and clinic visits. Home health monitoring and visit costs for 1 year equals 50 hospital bed days.

Some of the benefits of remote telehealth care are the possibility to see the condition of the patient in his/her home environment. It enables body language assessment and the assessment of the status for action, e.g., whether the patient is dressed and whether the room is tidy.

Telehealth care also has some important social benefits, as it helps to maintain family cohesiveness due to the greater ability of family at home to assist the patient. The patient can remain in familiar surroundings and near friends and receives more immediate and accurate help.

Home telecare, when implemented correctly, prolongs life, quality of life, comfort, time, and money. As we get older, the availability of a home telecare service should be high personal criteria in selecting a retirement location.

Alain Maskens, Chief Scientific Officer, HealthOne Global Ltd, UK, presented a clear and forward-looking view on

Electronic Healthcare Records: Global Convergence

Barriers to wide Health Information Technology (HIT) adoption are direct and indirect costs, privacy and confidentiality concerns, but especially a lack of interoperability.

Semantic interoperability is the ability of two or more IT systems to exchange information and to make mutual use of the information that has been exchanged. Interoperability is an important goal and as stated by Anderson et al. "the value of a particular HIT system installed by one stakeholder tends to increase with the number of other HIT systems installed elsewhere with which that stakeholder's HIT system can communicate".

As regards the current status of interoperability of Electronic Healthcare Records, most clinical data is still on paper. Currently installed systems are almost 100% not interoperable. Main reasons are that most vendors are SME's specialised in small niche markets, international players do not offer interoperability of EHRs produced by their systems in different markets or institutions, and interoperability was not a requirement when most current systems were designed. Moreover, there are technical difficulties due to the complexity of clinical data, financial difficulties and the absence of formal EHR exchange standards.

EHR exchange standards are needed for data architecture models and the clinical contents in terms of common terminologies and a standardised way to represent clinical concepts.

The development of standards has started very early in Europe, initially through R&D projects. The project GEHR (the Good European Healthcare Record), a EU project funded within the 4th Framework Program, produced a data architecture enabling portability and communication of EHRs. In addition to that, the European standardisation committee CEN set up a specific technical committee for the progressive development of a standard based on the GEHR architecture. The standard EN 13606 "Electronic Health Record Communication" has the overall goal "to define a rigorous and stable information architecture for communicating part or all of the electronic health record (EHR) of a single subject of care (patient). This is to support the interoperability of systems and components that need to communicate (access, transfer, add or modify) EHR data via electronic messages or as distributed objects". EN 13606 will probably become a formal standard this year.

In the U.S., the HL7 organisation has build messaging standards very early and during the 90th they started developing a more widely data model, the Reference Out of these overall clinical data model, a subset has been derived which is the clinical document architecture. The HL7 "Clinical Document Architecture" provides an exchange model for clinical documents (such as discharge summaries and progress notes). Its Information Model (RIM). The RIM was accepted as an American standard in 2003. Release2 was adopted as an American national standard on 21 April 2005

The international not-for-profit foundation *open*EHR is working on making the interoperable, life-long electronic health record a reality and improving health care in the Information Society. There work goes beyond standardisation as *open*EHR is trying to establish an open source platform.

Among these three major international efforts there is now solid cooperation and convergence being established. Several years ago, informal cooperation started by overlapping membership, academic and industrial initiatives. Formal cooperation started with the memorandum of understanding between HL7 and CEN and than they decided to go under the ISO umbrella. The two major EHR standards, coming from HL7 and CEN, are now formal word items in the ISO. Last month in Brussels, the three organisations signed a cooperation agreement.

International, standards-based interoperability of EHRs has become an achievable goal. An immense effort involving industry, healthcare providers, patients, insurers and authorities is now required for implementing the new standards as widely as possible.

The question raised during the following **Q&A** part referred to the potential benefits of standardization for the patients. Alain Maskens stressed the various the benefits going along with improved health care and making information accessible to the patient because of the interoperability of the records. If the data that belong to a patient can be exchanged, this will free and empower the patient and he or she is no longer obliged to go to same doctor. Interoperability enables citizens to regain control of their healthcare.

Paul Cheshire, Director of Strategy for Government Markets at Atos Origin, UK, gave a thought-provoking talk on

Data Sharing Sans Frontiers - Putting Global Good before Personal Privacy?

600 years ago, 30% of Europe's population - 25 million people – died from the black death; wars and trade stopped briefly, and wages increased as labour was in short supply. But it was also the stimulus for a future public health reform by building up a system of sanitary control for contagious diseases and undertaking major efforts to improve sanitation.

500 years later, the first formal international health conference took place in 1851 in Paris and in 1907, a permanent international health organization was established to receive notification of serious communicable diseases from participating nations, to transmit this information to the member nations, and to study and develop sanitary conventions and quarantine regulations on international travel then, before the advent of air transport, limited to shipping and train travel. This organization was absorbed into the World Health Organization (WHO) in 1948 and acted as a clearinghouse for information about disease throughout the world. It today it manifests itself as the Global Outbreak Alert and Response Network (GOARN) which provides field support. There are 400 technicians in GOARN who have in the last 5-6 years intervened in about 50 potential disease outbreaks.

Can we do or should we do better? There are a number of areas where we should do better. Some of them have nothing to so with ICT, such an improved early detection of a disease or more certainty in detection and diagnosis. We ought to move into more pre-emptive and ex-post actions, which is screening and quarantine. And the collection of data from multiple sources brings the question whether data should be collected on a personal basis, and what is the level of detail?

Who might be involved? There are the international central outbreak response service, regional and national command centres, public health services, private health services, the voluntary sector, employers, and citizens. In developed countries, individuals, when they do

not fee well, contact the employer to call in sick. Should therefore human resource departments or employer organisations included in an outbreak alert network?

Issues to be addressed are for instance those of cyber-surveillance, not only by the state but also by friends or neighbours, the issue of identity, especially in the third world countries, and interoperability. Semantic interoperability will be key. There may need to be some changes to legislation and regulation, although the Data Protection Act in the UK allows the sharing of data without consent of the subject for the detection and prevention of crime and also for the public health.

To conclude, Information and Communications Technology infrastructures necessary to provide this degree of networking are unlikely to be the biggest challenge. An essential question to be answered is whether the global good should put before personal privacy.

CONTACT

The conference programme, presentations and slides, speakers' profiles, participant's testimonials, and related information on the Global Forum 2006 are made available on the website of ITEMS International www.items-int.com.

Please do not hesitate to contact ITEMS International if you need any help to get in touch with the participants of the Global Forum 2006.

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Your feedback is important to us and we would be pleased to receive your comments on this year's Global Forum as well as suggestions for the Global Forum 2007.

The team of ITEMS International will be pleased to answer any question and to provide you with more information about the upcoming Global Forum 2007. Please make sure to check our website regularly for valuable updates.

ACRONYMS & ABBREVIATIONS

ADSL	Asymmetric Digital Subscriber Line
ARPU	Average Revenue Per User
AWL	Authorized Worker Lock
CALEA	Communications Assistance for Law Enforcement Act
CAPEX	Capital Expenditure
CATV	Cable TV
CEN	European Committee for Standardization
CIO	Chief Information Officer
CEO	Chief Executive Officer
CRM	Customer Relationship Management
CSA	Conseil Supérieur de l'Audiovisuel
CSS	Cascading Style Sheets
DADVSI	French Loi sur le droit d'auteur et les droits voisins dans la société de l'information
DCI	Digital Cinema Initiative
DCSS	Dynamic Cascading Style Sheets
DCSSI	Direction Centrale de la Sécurité des Systémes d'Information
DDoS	Distributed Denial of Service
DG	Directorate General
DMP	Dossier Médical Personnel
DNA	Deoxyribonucleic Acid
DNS	Domain Name System
DRM	Digital Rights Management
DSL	Digital Subscriber Line
DTH	Direct To Home
DVB	Digital Video Broadcast
DVB-H	Digital Video Broadcast - Handheld
DVD-R	Digital Versatile Disc - Recordable
EC	European Commission
ECPA	Electronic Communications and Privacy Act
EDI	Electronic Data Interchange
IEEE	Institute of Electrical and Electronic Engineers
eID	electronic Identity
EHR	Electronic Healthcare Records
EMR	Electronic Medical Records
ERP	Enterprise Resource Planning
ESA	Enterprise Service Architecture
EU	European Union
EUR	Euro
EVDO	Evolution-Data Optimized
FCC	Federal Communications Commission
FP6	6th Framework Programme of the EC
FP7	7th Framework Programme of the EC
FTC	Federal Trade Commission
FTTH	Fibre To The Home
FTTx	Fibre To The X
GDP	Gross Domestic Product
GHZ	Gigahertz

HDTV	High Definition TV
HIT	Health Information Technology
HL7	High Level 7 Standard
HSDPA	High-Speed Downlink Packet Access
HTTP	Hypertext Transfer Protocol
ICT	Information and Communication Technologies
ID	Identity
IDN	Internationalized Domain Names
IGF	Internet Governance Forum
IMS	IP Multimedia Subsystem
INO	IT in Networked Organizations
IP	Internet Protocol
IPTV	Internet Protocol Television
IPR	Intellectual Property Rights
IPv6	Internet Protocol version 6
ISO	International Organization for Standardization
ISP	Internet Service Provider
IT	Information Technologies
ITU	International Telecommunications Union
MAN	Metropolitan Area Network
MBMS	Multimedia Broad- and Multicast Services
MediaFLO	Media Forward Link Only
MHz	Mega Hertz
MEMS	Micro-Electro-Mechanical System
NGI	Next Generation Internet –
NGN	Next Generation Network
OECD	Organisation for Economic Cooperation and Development
OEM	Original Equipment Manufacturer
OSS	Open Source Software
PA	Payroll Administration
PC	Personal Computer
PDA	Personal Digital Assistant
PDF	Portable Document Format
PSTN	Public Switched Telephone Network
QVGA	Quarter Video Graphics Array
Q&A	Questions and Answers
RDS	Radio Data System
RFID	Radio Frequency Identification
RIM	Reference Information Model
ROI	Return On Investment
R&D	Research and Development
S-DMB	Satellite Digital Multimedia Broadcasting.
SFA	Sales Force Automation
SME	Small and Medium Sized Enterprise
SMS	Short Message Services
SOA	Services-Oriented Architecture
SWIFT	Society for Worldwide Interbank Financial Telecommunications
TD-CDMA	Time Division Code Division Multiple Access
TDtv	Time Division TeleVision
TLD	Top Level Domain
TV	Television

UHF	Ultra High Frequency
UK	United Kingdom
UMTS	Universal Mobile Telecommunications System
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
US	United States
USD	US Dollar
VHS	Vertical Helical Scan
VoB	Voice Over Broadband
VoIP	Voice over IP
VoD	Voice on Demand
VPN	Virtual Private Network
WiFi	Wireless Fidelity
WiMAX	Worldwide Interoperability for Microwave Access
WIPO	World Intellectual Property Organization
WSIS	World Summit on the Information Society
3D	3 dimensional
3G	3rd Generation
3GPP	Generation Partnership Project

It was with great sadness that we learned of the sudden passing of our friend and colleague Robert John Garigue, Vice-President for Information Integrity and Chief Security Executive at Bell Canada.

On behalf of the organizing team of the Global Forum, we would like to extend our deepest sympathy and condolences to Robert's family.

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