# SHAPING THE FUTURE
# TOWARDS A GLOBAL e-SOCIETY

**e-cooperation – e-competition – e-creation in the Information Society**

## Global Forum 2000

Sophia Antipolis, 19-20 October 2000

# Report

by Judith Ryser, CityScope Europe

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**NOTE**: THE REPORT IS THE RESTRUCTURED SUMMARY OF THE TWO-DAY CONFERENCE. THE DIFFERENT SPEECHES ARE GROUPED UNDER CHAPTERS REPRESENTING THE MAIN ISSUES.

This part of the report is summing up the main points of the papers given during the two-day Global Forum 2000 and the discussions which took place between the panels and the audience. It also presents the gist of the keynote addresses. The report is Structured according to the seven areas selected for this year's Global Forum:


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|---|---|
| Chapter 1. | (Tele-) communications markets and market players |
| Chapter 2. | Evolution of the Information Society and changing relationships between its (tele-) communications stakeholders |
| Chapter 3. | Regulation and self-regulation |
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| Chapter 7. | Electronic Government and the Future of Electronic Democracy |
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# A. PROGRAMME OF THE GLOBAL FORUM 2000
# TOWARDS A GLOBAL e-SOCIETY
# e-cooperation – e-competition – e-creation
# in the Information Society

## DAY 1: 19 OCTOBER 2000

### *WELCOME ADDRESSES*

**Pierre Laffitte**, Senator Alpes-Maritimes, France, President Foundation Sophia-Antipolis France
**Sylviane Toporkoff**, President, Global Forum 2000, France

## PANEL 1: OVERVIEW OF THE STRUCTURE OF THE INFORMATION TECHNOLOGY MARKET / MERGERS, ACQUISITIONS AND ALLIANCES

### *PANEL 1.1: MARKET PLAYERS*

**Chair: Matthew L. Epling**, CEO, Extant/Dynegy Europe, Austria (chapter 1)
**Moderator: Sergio Antocicco,** President**,** Italian Association of Telecom Users (ANUIT), Italy (chapter 1)

**Speakers:**

**Hervé Rannou,** President, ITEMS International, France / *Telecom markets and perspectives* (chapter 1)
**Franco Bernabé**, President, Bernabé & Cie, Italy / *The New economy as an important environment for joint-ventures* (chapter 1)
**El Hadi Chaïbaïnou,** General Director, Groupement Professionnel Des Banques du Maroc, Morocco / *Information rights* (chapter 3)
**Hisham El Shérif**, Chairman, IT Ventures, Egypt / *Investing in the Mediterranean e-Markets* (chapter 1)
**Charlotte Nielsen**, Coordinator & General Secretary, Telecities, Belgium / *TeleCities – Presentation of the association and its activities* (chapter 2)

### *PANEL 1.2: EVOLVING RELATIONSHIPS IN THE INFORMATION SOCIETY*

**Chair: Alain-Louis Mie,** Senior Vice-President International Public Affairs, France Telecom; Sherpa European & Africa Zone, Global Business Dialogue on e-commerce (GBD) / Member of the Task Force Digital Divide, France (chapter 2)
**Moderator: Michel Carpentier,** Honorary General Director, European Commission (chapter 2)

**Speakers:**

**Jean-Marc Louward,** General Director, BLR Services, Group LDCom Networks, France / *A carrier's carriers model* (chapter 2)
**Sylwester Marat,** Managing Director, Kipling IT, Sweden / *Next Generation Internet and the transformation of the media industry into a new global marketplace for content* (chapter 2)
**Bernard Mathieu**, Director of Programs of Radiocommunications**,** CNES, France/ *Strategic vision of e-society*(chapter 2)
**Antoinette Moussalli**, Head of European and International Affairs, London - Lewisham, UK / *Connecting London Government* (chapter 2)
**Frank Girard**, Chief Executive Officer, Comverse Network Systems, USA / *e-Power*(chapter 2)
**Chris Jackson,**, CEO Vesta WirelessWorks, UK / *Mobilising innovation towards an m-Society* (chapter 2)

**François Belorgey,** Ingénieur en chef des Télécommunications, Ministère de l'Economie, des Finances et de l'Industrie, France /*Telecommunications policies* (chapter 4)

**Discussion**

## PANEL 2: REGULATION AND COMPETITION ISSUES

### *KEYNOTE SPEAKERS*

**Moderator: Brian Moir,** Partner, Moir & Hardman, USA

**Speakers:**

**Erkki Liikanen**, European Commissioner of the Information Society (INFSO), European Commission, Belgium / *e-Europe 2000* (chapter 3)
**David Coleville,** Vice-President, Canadian Radiotelevision and Telecommunications Commission (CRTC) Canada / *Public policies for (tele-) communications* (chapter 3)
**Katherine Brown,** Chief of Staff, Federal Communication Commission (FCC) USA / *FCC's position as regards globalising telecommunications* (chapter 3)
**Alan Crew Beyer**, Vice-President Global Telecommunications, American Express, USA / *Telecommunications regulations seen from a user's point of view* (chapter 3)
**Marc Fossier**, Executive Group Vice-President Public Affairs, France Telecom, France / *Relationship between regulation and competition* (chapter 3)

**Discussion**

### *PANEL 2.1: INDUSTRY REGULATION*

**Chairman : Shigehiko Naoe,** Professor of Information Policy, Chuo University, Japan (chapter 4)
**Moderator: Andrew Lipman**, Partner, Swilder Berlin Shereff Friedman LLP, USA (chapter 4)

**Speakers:**

**Ann LaFrance**, Chief Counsel-International Affairs, WORLDCOM, USA / *Shackling the Internet?* (chapter 4)
**Thierry Miléo**, General Director, First Mark, France / *Highspeed wireless* (chapter 4)
**Aviva Silver**, Administrator, Unit Audiovisual Strategy, Directorate General Education & Culture, Belgium / *New regulatory framework for audiovisual in the context of the evaluation of the revue of the 'television without frontières' Directive* (chapter 4)
**Jean-Paul Tran Thiet**, Associated Lawyer, Bureau Francis Lefèbvre, France / *Mobile virtual networks* (chapter 4)
**Jean-François Tournu**, Director of New Technologies, Conseil Supérieur de l'Audiovisuel, France / *The revolution of Digital Video Broadcast Territorial (DVBT)* (chapter 4)
**Kim Ambler,** Manager Industry Affairs, Boeing, USA / *The user point of view of telecommunications regulations* (chapter 4)

**Discussion**

### *PANEL 2.2: INDUSTRY COMPETITION*

**Chairman : Bridget Cosgrave** : Deputy General Director, ETSI, France / *Importance of norms in competition* **(chapter 5)**
**Moderator: Brian Moir**, Partner, Moir&Hardman, USA

**Speakers:**

**Kathryn Brown**, Chief of Staff, Federal Communications Commission (FCC), USA / *Government point of view* (chapter 5)
**Robert A. Morin**, Deputy Commissioner of Competition Compliance and Operations Branch Competition Bureau, Canada / *Conformity continuum* (chapter 5)
**Michaël Stankosky**, Professor, The George Washington University / *Knowledge management systems providing new wealth and connectivity in the age of Internet* (chapter 5)
**Cecilia Fraenkel**, Manager, Future Com Factory, Sweden / *Think-tank about the future of telecommunications* (chapter 5)

**Discussion**

## DAY 2: 20 OCTOBER 2000

## PANEL 3: COMPETITION, CUSTOMERS AND SUPPLIERS: IMPLICATIONS AND NEW DIRECTIONS

### *KEYNOTE SPEAKERS*

**Moderator: Pierre Laffitte**, Senator of Alpes-Maritimes, France, President Foundation Sophia-Antipolis France

**Speakers:**

**Edith Cresson**, Ancien Premier Ministre, France / *ICT as means to assist social integration* (chapter 6)
**Larbi Ajjoul,** Former Secretary of State, New Technologies & Posts, Morocco, *New technologies for the postal system* (chapter 6)
**Helena Lindskog,** CEO Heldag AB / *Time rich and time poor* (chapter 6)

**Discussion**

### *PANEL 3.1: INNOVATIVE APPLICATIONS: ELECTRONIC GOVERNMENT AND OTHER APPLICATIONS*

**Chair: David Wood**, Councellor Newcastle-upon-Tyne, UK (chapter 7)
**Moderator: Ellwood Kerkeslager**, President & CEO, Information Futures LLC**,** USA (chapter 7)

**Speakers:**

**Harald Melzer,** Communications & President Manager, SES Astra Multimedia, Luxembourg / *Broadband user communities and residential access via satellite* (chapter 2)
**Bruno Peeters,** Echevin, City of Antwerpen, Belgium / *The Information Society in a City Environment* (chapter 7)
**Francesco Foffani**, Operational Manager, Engineering, Italy / *e-Government – Best-Practice in the Municipality of Venice* (chapter 7)
**Valentine Reilly,** Project officer, General Information Society (INFSO), European Commission, Belgium / *Telematics for Administration* (chapter 7)
**Jean-Pierre Quignaux**, Chargé de Mission-DREAP, UNAF, France / *The role of families in telecommunications development* (chapter 7)

**Discussion**

### *PANEL 3.2: THE FUTURE OF ELECTRONIC DEMOCRACY*

**Chair: André Santini,** Global Cities Dialogue President, Mayor of Issy-les-Moulineaux & Member of the French Parliament, France (chapter 7)
**Moderator; Pierre Laffitte**, Senator, President Foundation Sophia-Antipolis France (chapter 7)

**Speakers:**

**Erika Mann**, Member of the European Parliament and Counsellor, Directorate General Information Society (INFSO), European Commission, Belgium / *The Internet as a tool of interaction between politicans and citizens* (chapter 7)
**Giovanni Salizzoni**, Vice-Mayor, City of Bologna, Italy / *Use of the Internet to improve citizen services* (chapter 7)
**Walter Schwarzenbrunner,** Counsellor, European Commission, Belgium / *EU framework for e-democracy* (chapter 7)
**Stephen Denning**, Program Director, Knowledge Management, The World Bank, USA / *Knowledge sharing on electronic democracy* (chapter 7)
**Councillor Madeliene Long**, Deputy Mayor, London - Lewisham, UK (chapter 7)
**Carl Cederschiöld**, Mayor, City of Stockholm, Sweden / *Internet infrastructure and civil applications in Stockholm* (chapter 7)
**Wilfried Lemke**, Senator for Education and Science, Germany (chapter 7)/
**Jaime Buenahora**, Secretary of Government, Bogota, Colombia / *Constraints of ICT investment in the developing world* (chapter 7)
**Stephan Brunessaux**, Cybervote Project Director, Matra Systems & Information / *Cybervote issues* (chapter 7)

**Discussion**

## PANEL 4: e-BUSINESS, e-COMMERCE, m- COMMERCE, t-COMMERCE

**Keynote speaker Opening Session : Jean-François Pons**, Deputy General Director, Unit Directorate General Competition, European Commission, Belgium (chapter 8)

**Chair: Pravin Mircandani,** Director Business Strategy, Nortel Networks, France (chapter 8)
**Moderator: Kees Kuilwijk,** Manager for Europe, Steptoe & Johnson LLP, Belgium (chapter 8)

**Speakers:**

**Peter Anderberg,** Marketing Director, STEELSCREEN, Sweden / *Internet in the Steel Industry* (chapter 8)
**Michel Del Giudice**, Chairman & CEO, Comm Time Cast, France / *Internet & TV Technologies Crossroads: A Stategic choice for the Enterprise* (chapter 8)
**Thierry Lepercq,** Chairman & CEO, Netscapital, France / *Financing the e-Society* (chapter 8)
**David Stephenson**, Cyber-Comm, France, / *Smart card and electronic wallet, CyberComm experience in increasingr security* (chapter 8)
**Chris Verwoert,** Marketing Director Europe & Africa, INTERGRAPH, Netherlands / *Geo-Marketing at your fingertips* (chapter 8)
**Grégory Matéos,** Partnerships Director, Posteasy, France / *Relation between traditional and electronic postal services* (chapter 8)
**Staffan Brege**, Professor of Market Strategy, EKI, Sweden (chapter 8)/
**Olivier Griffith**, First Secretary Economics Affairs, American Embassy, France / *International position of the USA on ICT* (chapter 8)

**Kim Ambler**, Management Industry Affairs, Boeing, USA / *e-Commerce for large scale client.* (chapter 8)

**Discussion**

## CLOSING SESSION

### *SYNTHESIS*

**Jean-Pierre Chamoux**, Professor, Department "Information-Communication", University of Le Havre, France (chapter 9)

### *CONCLUSION*

**Pierre Laffitte,** Senator, President Foundation Sophia-Antipolis, France (chapter 9)
**Sylviane Toporkoff,** President, Global Forum, France (chapter 9)

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# B Report

by Judith Ryser

## • 1. ITEMS Global Forum 2000: Background

### 1.1 Global Context.

The Global Forum 2000 focused on the inroads of electronic communication into societies increasingly shaped by information. The explosion of virtual e-companies wanting to provide services on the Internet with their shares soaring sky-high while often lacking material collateral assets were read by many as a sign of a dematerialising world. Yet is this true? The subsequent demise of so many start-up high flyer 'dot.coms' left many venture capitalists stranded. It also disappointed both users and other companies locked into these new virtual networks. The least one can say is that the (tele-) communications sector and its convergence with other communication technologies and the media is extremely dynamic, volatile and unpredictable. Mergers and acquisitions across continents are not slowing down and new firms emerge while others continue to fold up. A recent example of cross border and cross sector mergers is the French mobile phone and Internet site provider Wanadoo acquiring the Freeserve portal of one of the largest electronics firms in the UK, Dixons. As telecommunications are both the architect and the architecture of globalisation, they facilitate other corporate shifts in the global economy. Recent examples are stock exchange mergers, and continuous consolidation and, conversely, breaking up of large companies.
There may also be a sign of herd behaviour. Nobody wants to miss such a promising act. Both investors and inventors are stepping into this virtual world. This leads to overrated shares and subsequent stock market 'adjustments'.

Governments, political organisations and regulatory agencies remain heavily involved in the evolution of the (tele-) communications sector. At the international level, the World

Bank, the World Trade Organisation, and especially the International Telecommunication Union are among the major players in influencing the development and convergence of this vital sector.

'Regional' international federations, unions and organisations, such as the Organisation of Economic Cooperation and Development (OECD) are also actively involved in the future direction of the (tele-) communications sector. They can draw on unique knowledge bases and constitute powerful lobbies. The European Union is keen to assist its member states to remain competitive in this key driving force of the 21st century. The European Commission has put a lot of resources into studying the information society and its technological needs. Arguably the most influential connection of the EU to global negotiations and decision making is its active role in the International Telecommunication Union (ITU) and its many technical and regulatory committees. The ITU is a United Nations specialised agency with unique membership of government and industry. Over recent years of liberalisation, the ITU has been broadening its activities, branching out from its erstwhile remits of attributing radio frequencies and standardising telecommunications worldwide to assisting countries in telecommunications infrastructure provision, especially in the developing world and running commercial ventures. It has also initiated the EC-DC project (Electronic Commerce for Developing Countries) with over eighty countries and it continues to provide an authoritative worldwide statistical service and analytical reviews of (tele-) communications markets and financing. Its latest activities include the study on 3G mobile networks convergence based on a roadmap for future development of third generation network standards.

On the non governmental side, many international organisations have sprung up to share best practices of applying (tele-) communications to the dissemination and delivery of urban services, electronic voting, two-way communication between city administrations and citizens. They have also branched out into other sectoral digital communications such as tele-medicine, distance learning and even commercial spin-offs facilitating leisure information and entertainment, business-to-business services or housing markets. Many of them use their electronic data bases for a wide range of applications, although this may raise copyright and human rights issues in the longer term which are of great interest to the Global Forum.

## 1.2 Concept and Organisation of the Global Forum

In the light of this wide range of rapid developments, ITEMS International and the Foundation Sophia-Antipolis have made 'the Global Forum on Shaping the Future of (Tele-) Communications and their Applications' an annual event. It became a necessity for those who want to keep abreast with the latest developments in technology, regulation, markets and application of (tele-) communications. The fact that well over two hundred participants from virtually all over the world attended the Global Forum 2000 vets for that.

It is worth recalling that the “Global Forum” has been a catalyst for wide ranging applications of (tele)communications. Since its inception in 1992, it has brought together international key actors who shape the information society. Gathering experts from advanced economies initially - the USA, Western Europe and Japan - the Global Forum is increasingly involving developing countries in response to WTO Agreements on telecommunications. They include countries on the Mediterranean fringe of Europe (such as Morocco, Egypt,…), Mexico in the sphere of NAFTA, and other countries in need of upgrading their telecommunications infrastructure, such as Russia.

The Global Forum aims to generate synergy between suppliers and clients of (tele)-communications applications and to set up partnerships between practical applicants of innovative ideas. ITEMS International has been instrumental in organising “The Europe/ North America/ Japan Forum on Cooperation and Competition in the Global Information Society”.

Since 1992, eight interactive events were held in the USA, Japan and Europe, with the support of the European Commission, and also of prominent hosts and sponsors. The Global Forum investigated “The Merits and Drawbacks of Cooperation and Competition in Telecommunications” in Washington and New York in 1992. It subsequently extended the dialogue to Europe in Rome in 1993 and Paris in 1994 where Japan joined. A “Forum on Communications” took place in Kyoto in 1995, followed by a road show with demonstrations on “Cities and Local Development in the Information Age” in New York, Washington, San Francisco and the Silicon Valley. Together with the Sophia Antipolis Foundation and Professor Sergio Antocicco of the University of Rome, ITEMS organised the first “World Forum on Smart Communities: Shaping the Future” in Sophia Antipolis, France and Rome, Italy in September 1997. In 1998, ITEMS curated a Global Forum on “Shaping the Future” in Paris, together with the Foundation Euromed Com, headed by Pierre Laffitte, the French Senator for Alpes Maritimes. In 1999 and for the Millennium, the Global Forum took place in the science park of Sophia Antipolis in France under ITEMS International and the Foundation Sophia-Antipolis. They focused respectively on “New satellite and terrestrial applications” and “The future of a global e-society”.

**The Associate sponsors of Global Forum 2000 were :**

France Telecom, ASTRA, BOEING, CANAL+, CNES, CommTime Cast, COMVERSE, ENGINEERING INGENERIA INFORMATICA, EXTANT, ISTAR, KIPLING, LDCOM NETWORKS, Newcastle City Council NORTEL NETWORKS, TELEPOLIS, and WORLDCOM.

**The Supporting sponsors of the Global Forum 2000 were :**

The European Commission, ANUIT, ETSI, e-Vocation, Global Cities Dialogue, iF, Issy-les-Moulineaux and VSA,

The next Global Forum will take place Thursday 18 & Friday 19, 2001 in Newcastle-upon-Tyne, UK. The Global Forum of Shaping the Future will continue to bring the (tele-) communications industry together with public and private Information and Communication Technology (IC users at the local level and regulators. In the new

millennium the Global Forum will remain at the forefront of high level discussions on the latest ICT developments and their applications.

Each year the focus of the Global Forum shifts to reflect the latest state of the art and to detect representative trends. The tri-partite expertise of the speakers who are chosen from among the (tele-) communications industry, regulators and implementers reflects the complexity of the (tele-) communications situation and contributes to an authoritative contemporary perspective. Information and points of view were voiced by hard- and software producers, incumbent and new telecommunication companies, disseminators such as portal holders and other information publishers and distributors, service and content providers, over the Internet and the media, as well as those who apply all forms of (tele-) communications technologies – be it voice, data or interactive transmission - to peer networking, electronic democracy, and last but not least to inform citizens generally.

### 1.3 Characteristics of the Global Forum 2000

Geographically, the speakers of the Global Forum 2000 were from all over the world (i.e Argentina, Austria, Belgium, Brazil, Canada, China, Columbia, Czech Republic, Egypt, Finland, France, Germany, Hongry, Israel, Italy, Japan, Latvia, Lithuania, Luxembourg, Mali, Morocco, Netherlands, Romania, Russia, Slovakia, Spain, Sweden, Ukraine, UK and USA). Together, they represent areas endowed with the most lucrative (tele-) communications markets and where the most significant technological and regulatory changes are taking place. Yet speakers from Morocco, Egypt and Columbia signalled an increasing awareness of the importance of (tele-) communications in the developing world and its need to catch up with infrastructure installation. Especially the newly industrialised countries insist on better access to networks of communication and information and request greater participation in regulatory and technology debates. Participants from Eastern Europe and Russia were also expressing their future needs of (tele-) communications infrastructure and services and their desire to be bound into global (tele-) communications markets.

Representatives of international organisations such as the World Bank were in the best position to put a point of view for Africa or the Far East, including China and other parts of the developing world where they are actively involved in assisting (tele-) communications developments. The European Commission was again well represented at the Global Forum, as it offers the EU the opportunity to disseminate EU ‘telematics’ strategies and other information society policies to key industries and user communities. The EU plays a global role in putting forward a consolidated European voice in the debates of the World Trade Organisation (WTO) on (tele-) communications service provision and trade, such as the basic telecommunications agreements and follow-ups on tariff rebalancing, cost-based pricing and other financial and service issues. The EU with its many links to other global and intergovernmental organisations is thus well placed to give and receive feedback in all directions, including at the Global Forum. Participants of the Global Forum 2000 had the opportunity to convey their objectives

and requirements to these global agencies during the lively discussions which followed the seven areas debated at the Global Forum 2000.

The Global Forum has shown over the years that cooperation is the key to the future. Cooperation has to occur across country boundaries between specialist groups dealing with information technology, finance, the economy, and those involved in social, cultural and environmental aspects. Most importantly scientific progress requires universal application of information and communication technologies (ICTs), together with active participation of people in real and virtual communication networks.

## • 2 HIGHLIGHTS OF THE GLOBAL FORUM 2000 Synthesis of Panels and Summaries of Discussions

This part of the report is summing up the main points of the papers given during the two-day Global Forum 2000 and the discussions which took place between the panels and the audience. It also presents the gist of the keynote addresses. The report is structured according to the seven areas selected for this year's Global Forum:


Chapter 1. (Tele-) communications markets and market players
Chapter 2. Evolution of the Information Society and changing relationships between its (tele-) communications stakeholders
Chapter 3. Regulation and self-regulation
Chapter 4. Competition and Industry Regulation
Chapter 5. Competition Strategies and Management
Chapter 6. Innovative Applications
Chapter 7. Electronic Government and the Future of Electronic Democracy
Chapter 8. e-Business, e-Commerce, m-Commerce, t-Commerce
Chapter 9. Conclusion


The detailed programme of Global Forum 2000 introducing this report lists all the speakers, together with the topics they have addressed specifically during their interventions.

### 1. (Tele)- Communications Markets and Market Players

Depending on standpoints, the telecommunications market perception brings up different perspectives. From a private company point of view, the internationalisation of cash rich incumbent telecommunications companies rises concerns for **Franco Bernabe**. As **Sergio Antocicco** pointed out, over the last 18 months they tended to depart from their traditional model of development based on loose partnerships between companies which kept their autonomy within their own territory. Unlike in Japan where telecommunications operators focus on technological development and networked operations, in Europe companies accelerate the convergence between

telecommunications and other ICT sectors because they are unable to predict the profitability of each in five years time. Encouraged by financial analysts to increase their financial leverage, they are now displaying an indiscriminate appetite for aggressive mergers and acquisitions across continents and platforms to fight off uncertainty, thus increasing their debts to unsafe levels. They make a turbulent market even more volatile and may provoke instability in the financial market as a whole, triggering a downward spiral of insolvency, lack of disposable assets and drop in share prices. Conversely, the case of Cisco or Wintel shows that commercial success of the future 'net-economy' depends on flexible and efficient networking capacity between partners.

**Matthew L Epling** of Extant, a wholesale broadband provider, commented on the shift of technology from voice to data transmission. The voice market evolves by 5% per annum while data transmission increases by 300-800% per annum. Thus telecommunication companies have to become more generalised ICT organisations, which in turn justifies convergence. 64k switched calls require 2-7 minutes per call to be economically viable, while broadband phase ADSL 1000 deliver 6Mbit circuits 24h/day. Nevertheless, there can be room for both switched and broadband transmission, provided that new entrants push technology ahead instead of the holders of the old PTT infrastructure. The voice market will remain viable for individual to individual communication and interactive relations between origins and destinations. Broadband will be applied to business use and content providers. Such data transmission will change the economy and the business to business communication modes.

Voice transmission development will take place in four phases:

- In the 15 EU member states Europe regulation applied historically to PTT. With the separation of the postal mail services from telecommunication and the introduction of digital communication technology regulations will need to change.
- Meanwhile deregulation remains limited, but with increasing numbers of GSM providers penetration of mobile communication will increase to 60%.
- Pressure from intensive competition will lead to more deregulation.
- Consolidation will continue with more mergers and acquisitions across platforms and ICTs. Companies will share license fees for the next generation of mobile communication (GSM UMTS).

**Herve Rannou** of ITEMS International gave an overview of telecommunications market perspectives. He too saw links between telecommunication markets and finance. In assessing advantages and risks, core business issues were infrastructure, services, content, and geographic coverage, while financial preoccupations were fluctuating stocks, investment and financing. As regards market trends, infrastructure will remain stagnant or grow slowly, while mobile services will catch up with fixed services. The most dynamic sector is e-business which is expected to grow from a very low starting point in 2000 to over $ 2000 billion by 2010. However, it is not clear how to define e-commerce and whether growth relates to turnover, profit, investment, fixed capital

formation or other criteria. The greatest number of actors involved in this evolution will be in trade and services while infrastructure engineering will be less in demand.

Territorial infrastructure development has a good outlook when combined with the control of frequencies. It will preserve its independence, gain income from competitors, and benefit from asset conversion and flexible marketing of services. Pressure to liberalise the local loop, carrier hotels and data centres may threaten these advantages as they bring low added value and are constrained by plethoric offer, high investment and geographic restrictions.

Similarly, development options for telecommunication services are promising in residential convergence and corporate VPN (voice and data) which gives direct access to consumers and thus better customer control, direct value added and which can count on high demand. Mobile convergence and service bundling may make inroads though, if they master technological complexity and speed, together with business organisation and are capable of responding to specific needs instead of sticking to a traditional industrial approach.

Content strategies should focus on portals and e-commerce, and in particular on the choice between Business to Business and Business to Consumer services and on adequate partners. E-commerce is a new area for consumers and citizens alike and promises good and direct incomes if it is independent from telecommunications technologies and actors. The potential number of actors will determine the fierceness of competition. Difficulties with differentiating supply, together with customer versatility and spending power are other constraining factors though.

In the light of all these uncertainties it is difficult to predict the market and its profitability. In the US, in 1998 1$ invested brought 42 cents revenue which dropped to 34 cents in 2000. Between 1996 and 2000 investment increased by 25% while revenues stayed at 10%. Meanwhile, the telecommunications debt has soared to $1.3 billion, while stock values fell for TMT 40% in the USA and 30% in Europe and TMT players shrunk from –20% to –75% between March and October. Nasdaq decreased by 20% between January and October.

Looking at turnover and market capital of nineteen telecom companies [Rannou dia 8] , the Japanese NTT retains the highest turnover of some $ 90 billions, followed by a mixture of USA (AT&T, SBC, MCI Worldcom, GTE, Bellsouth, Sprint, Yahoo, Level 3) at below $ 50 billions and European companies (Deutsche Telekom, France Telecom, BT, Telecom Italia, Telefonica, Cable & Wireless, Vodaphone, Colt Telecom, LDCOM). Market capital is on the whole much higher although it has been declining by -40%. Yahoo for example has lost -60% but remains an important player. Overall, the American companies tend to have a higher turnover than the European companies. The way they share the risk with manufacturers, use a value added infrastructure, and get involved in virtual services or UMTS may influence turnover and profitability.

For telecommunications players the winner of the technological changes which take place every five years are the manufacturers. Overall they provide a growing number of systems increasingly close to the customers. For that reason, they are asked to share the risks, extend the network geographically, build ICT infrastructure and operate the network. Players who use a value added infrastructure can offer long distance infrastructure, carrier hotels, data centres, network management, access to local loop interface (xDSL, radio, cable). These players can operate everywhere within existing infrastructure in the OECD area.

The latest addition to these services are 'intelligent networks'. They are global virtual services based on independent networks and include customer and service management, as well as infrastructure operations. There are a number of preconditions though for these virtual services, such as transparency, interconnection and the use of roaming. It is possible to piggyback, on standard networks with successful differentiated services. Those who want to become virtual players should chose a market segment where they are not present or a country where they have no infrastructure or resource. Existing chaos presents a major problem which requires them to be involved in the whole process of communication from beginning to end. Future virtual players will also have to keep sectoral control of marketing, business and ICT. They have to share risks with manufacturers, other players and banks and have to offer new value services such as ASP, mobility, bundles and content. The jury is still out on the UMTS case. Frequency acquisition is costly and availability is not secured. This may impede on customer management, value added services and contents.

Despite all these tentative developments still in their infancy, it is clear that the digital divide is starting to show already in an emerging digital world. Digital communication is advantageous for businesses and people in urban areas. Digital benefits are far less certain for those in dispersed suburban and rural areas and those in the developing world. With 47%, USA Internet users are taking up the largest share of digital infrastructure and services in 2000, followed by Europe (36%), Asia (14%), leaving only 3% to the rest of the world [Rannou dia 15].

**Hisham El Sherif** from Egypt presented his perception of a telecommunications market in a developing country and how the bias against it could be redressed. He focused on on-line infrastructure and services and investigated ways of including the developing world in global e-commerce. General statistics [El Sherif dias 3//5/6] show the poor ICT infrastructure in Africa as opposed to the rest of the world, let alone the developed world. Clearly, the inter-regional Internet backbone which is so vital for business and e-commerce is weak and Egypt seeks to obtain investment into its fifteen ICT venture backbone companies. With 94% of IP hosts and 16% of world population the developed world has the lion share of infrastructure. This leaves 0.7% for Africa and 6% hosts for the developing world for 84% of world population. The ICT economy, far from narrowing the development gap increases it. GDP per capita has been declining in the developing countries and is steadying up while the developed countries sustain slow growth [El Sherif dia 7/8]. Information infrastructure expansion is vital for development, business, and life in general. It assists people to earn income and gain freedom.

Application of ICT generates its own problems in the most diverse area of the world, the Southern Mediterranean, in terms of cultures, languages, education systems and national boundaries. The Euro-Mediterranean Information Society Forum had explored some of these issues and considered these countries as low to middle tier ready for e-commerce. They show many e-market drivers, such as high population, potential for e-market readiness, paradigm shift to new economy, latent demand, increase in Internet users, foreign investment partnerships. The Internet could assist trans-regional cooperation in numerous fields and thus further development.

What acts against the use of the Internet and progress with e-commerce in the South Mediterranean region is to keep up with technology, to find qualified staff, and to establish costs of the Internet based on usage rather than fixed rate. It also requires to adjust business practices, provide requisite security and overcome perceived social risks. Many other changes are necessary in what amounts to measures of development, such as economic reform, job creation and liberalisation of the public sector. It is also necessary to make policy makers lose their reluctance against high cost high risk strategies. Legal reform is particularly difficult in a situation with 1500 laws, many of them oral only. Nevertheless, Egypt has managed to reduce its debt from $44 billion to $29 billion. The next step is to develop the public services (networks, cost reduction) and education (scientific training, evaluation techniques, security skills, risk assessment, etc). Egypt has a programme of 700 projects for the Internet to bring information technology to the whole population. Some of them are linked to the national heritage in the museums which should be made more openly available over the next 15 years. A Mediterranean Information Agency, an African Information Society Initiative and North South links with the EU form all part of a new information friendly public administration infrastructure. The problem is finance, but progress also requires the best way to use existing resources and time, as good projects should be easy to finance.

Out of the 6 billion world population only 1 billion has access to ICT. At present, Africa has only 3.11 million people on-line, as opposed to the World total of 377.65 million of which North America shares 161.31 million [El Sherif dia 4]. However, 50% of the 250 million inhabitants of the Southern Mediterranean are not more than 20 years old. This presents an opportunity for leapfrogging, provided the people of the developing world have access to the global decision making process about the information society and get their fair share of assistance to set up companies and education infrastructure. In the longer term, local ICT infrastructure provision should only require 20% international costs for technological imports. A lot more should be developed in ‘smart partnerships’ using indigenous creativity and resources.

## 2. Evolution of the Information Society and Changing Relationships between its (Tele-) Communications Stakeholders

Innovations of the information society have been reviewed at previous Global Fora, but some basic visions remain valid, in the opinion of **Michel Carpentier**. Information without communication and exchange is meaningless, just as is thinking without being aware of the complexity between origin and perception of thought. Communication is not a matter of technique alone but of interaction - facilitated by technology - between people and society.

According to **Alain-Louis Mie**, the context of this review is the 1998 EU ad hoc committee of high level decisions on an EU open telecommunications market. Since then the environment has changed as regards traditional markets, infrastructure and content convergence, as well as international interdependence in world markets. Many new challenges have emerged. Technologically convergence has led to e-commerce business and complementary services. In the regulatory field the trend has been towards regulation not 'reglementation' (proscriptive regulation) of competition and innovation, but regulation still lags behind. Meanwhile, competitive financial capacity has accelerated concentration, mergers and acquisitions.

UMTS is a challenge in Europe. GSM scored a victory because of EU intervention. Frequency auctions yielded a poor response as operators perceived them to weaken their return on investment. Mergers did no longer take place between private companies only. It became clear that the public and the private sector had to cooperate more closely. Co-regulation in the USA is one example of policy cooperation. Selecting the most appropriate type of partnerships remains an unresolved question. Who should cooperate with whom in which sector and in which form? Is external growth through acquisitions from the outside bringing more conflict than content? Are ever larger conglomerates more viable than little firms and is it feasible to purchase incumbents?

*Industry* stakeholders presented a carrier's carriers model (**Jean-Marc Louward**), a multi-media messaging infrastructure (**Frank Girard**), a mobile Internet access for wireless related businesses (**Chris Jackson**) and a strategy of spatial communication (**Bernard Mathieu**). A telecom-media alliance illustrated progress of convergence between information society stakeholders (**Sylvester Marat**).

*Civil society* has always been at the heart of the Global Forum which fosters (tele-) communications applications for communities. Telecities have been developing information technology to improve communication between municipalities and their citizens (**Charlotte Nielsen**). A London Borough which has been a pioneer in wiring its community and preparing it for electronic democracy represented another public sector position (**Antoinette Moussalli**).

The merits of such a 'stakeholder' panel was to bring together the performance specifications and requirements of real and potential users with technological solutions offered by (tele-) communications industries in their specialised fields. The business

user community was present in the audience, participated in the discussions and had the opportunity to get explanations at the demonstration stands.

### *2.1 Industry Standpoints*

One issue was whether content should remain separated from telecommunication, radio infrastructure and other service provision. Broadband development initiatives which should give far broader access to electronic communication require rights of way and a deregulated telecommunications market. There is also a problem of standards and handshake to provide open access to high capacity infrastructure instead of confining it to specific business to business purposes. Seamless connected broadband services which link up the local loop, a metropolitan ring and the long haul network to a net centre and other carrier or redistribution centres is not aiming at providing end user service directly. Speed is of the essence in building a new fibre optic network based on latest technologies (eg DWDM) with xDSL and WLL connections which should eventually unbundle the last mile by providing a wireless local loop instead. The customers of such highspeed and high capacity network suppliers are operators who transmit data and multimedia to end-users. Such capital consuming industries have to remain leaders in a major activity, stay abreast with latest technological innovations and rely on power financial partnerships.

A step further is to move from fixed to mobile broadband provision. Access to the Internet via the next generation of mobile telephony by means of WAP terminals and UMTS is the latest convergence development which includes network and terminals, services and markets. This requires a new business model, linking up content creators with internal and external content producers, content brokers, Internet portals and broadband operators. Without sophisticated alliances, such undertakings could not function. Integrated billing and customer relations management form part of such complex cooperative networks offering high speed, high capacity (10 Mbits), full interactivity and enabling players to change position.

Other industries position themselves between content providers (Internet, infotainment, e-commerce, operator data) and any access devices anywhere. This requires network based enhanced services including messaging, speech portal, mobile internet and intelligent networking. Such services are user friendly, connected worldwide, thus providing easy access from any type of terminal, with consolidated billing coming from a single customer service point. Personalising such services is the next step in the evolution of multi-media messaging. It is essential for such a service which reaches end users directly to lead in industry standardisation.

Rapidly increasing wireless penetration fuels the new infomatic economy. It provides wireless investment opportunities for venture capital. Palm technology and more powerful wireless and wireline Internet access opens up new types of digital communication, encompassing an ever growing array of contents and business services. Personalisation accelerates the transfer from e-commerce to ‘me’-commerce.

New generation mobile phones are compared to Swiss army knives which enable people to carry all types of personalised devices with them and connect up to all types of networks and content providers. Incorporating investment with a service vehicle for the entire life cycle of such new economy businesses aims to guarantee their success.

### *2.2 Space options*

Space offers special opportunities for (tele-) communications developments although it is an expensive technology. As **Bernard Mathieu** pointed out, unlike the sea, space still belongs to everyone and no-one in particular and should be developed for the benefit of all world populations. Space transgresses sovereignty rules and has a propensity for global solutions. Defence science research has dominated space from which civil society has inherited spin-offs. Currently space research is half military and half civil. The USA invests most, followed by Europe which contributes one quarter of funding, followed by Japan and Russia. In true research tradition and to meet the high costs of space research, all parties pool technological know-how and share existing installations to provide a wide range of services. Space dominance has shifted over time and others - besides world powers - have kept some autonomy during the initial space race and after. Ariane has given access to space independently of politics. The history of space communication has developed alongside terrestrial and mobile communication, mobile and fixed broadband and digital communication. There is convergence and the same digital terminals can be used for earth and space communication.

The major civil use of space and satellite communication is dedicated networks and two-way services. It accommodates over one thousand TV channels, radio, and global digital multimedia services. Internet is relayed via GEOs and VSAT and satellites are used for global Intranets. Skybridge may be the most advanced multimedia provider by GEOs and LEOs. Iridium had suffered a setback, perhaps because it was too ambitious and too costly, although theoretically useful, as it could have served remote areas for scientific research and assisted communication in the developing world which is lacking basic infrastructure. Satellite communication is still used for educational purposes in the developing world and gives worldwide access to tele-medecine and knowledge generally. The CNES based in the Sophia Antipolis science park coordinates EU programmes such as Galileo and is involved in the synchronisation of systems and localisations by 2008. It hosts terminals for environmental management and telecommunications systems which aim at universal access, complementing the political tasks of defence and civic services.

CNES is at a crossroads and requires new finance to start and publicise its independent and full services available to EU member states and its potential contribution to national defence markets. Further development depends on a clear EU spatial strategy.

**Harald Melzer** reviewed the range of services one EU based satellite operator could provide worldwide. They can supply rich multimedia information directly to the computer

or TV screen for individualised reception. Its highspeed transmission allows for interactive use. Users are globally active professionals (eg doctors, architects, lawyers, brokers, journalists, consultants. Agencies and SMEs can use corporate channels. At present serving networks of suppliers such as petrol stations is explored. Taking advantage of on-going convergence, point to point systems will be developed for the future with the USA. Costs permitting, this should help in the long term to reduce the digital divide.

### *2.3 (Tele-) Communication at the Service of Civil Society*

Local public administrations are important stakeholders of (tele-) communications. Networking between them brings many advantages to the administrations themselves, as well as to the populations they serve. Thus pooling information and resources electronically and interactively makes sense.

Telecities was initiated by Eurocities a decade ago. Eurocities is a network of European cities bringing together mayors and other local politicians to discuss policy issues and make their voices heard jointly at the EU institutions. Unlike regions which are represented on the EU Committee of the Regions, cities have no direct voice in the European Union, although most of the implementation of EU legislation takes place at city and local authority level. The way to influence the political agenda of the EU was to establish a network between them and to cooperate on concrete projects. Telecities has become one of these networks specialising in electronic communication. “Telecities is an open network for European cities sharing common goals for urban development through advanced information and communication technologies”. At present it groups more than 120 members – on the whole medium and small cities from Western and Eastern Europe and industrial partners- as capitals and large cities have other worldwide networks such as megacities, metropolis, or INTA. Associate members include districts on the one hand, provinces and regions on the other. A technopole is also a member.

Projects focus on benchmarking and learning from each other. Telecities also foster and facilitate implementation of practical innovative cross-border projects. The main current projects are:

- Public Administrations and Electronic Commerce in Europe (PACE),
- Exchange of Skills;
- a Leonardo project for local job creation and capacity building; and
- eCT – electronic call for tenders, an eContent programme which investigates possible public private partnerships to facilitate access to and re-use of data embedded in public works calls for tender.

Other initiatives include Global Cities Dialogue, the Stockholm Challenge Award, and Global Union Challenge. Telecities organise conferences on their projects and hold annual meetings at which they agree on common strategies for submission to the EU. They also publish results of their projects and other analytical papers.

Lewisham London Borough which was a member of Eurocities from its inception and has experimented with electronic communication between the local administration and its citizens for some time has been appointed to run a new project: “connecting London Government” by the newly elected Greater London Assembly which is the new Londonwide government with a directly elected mayor. London’s by now growing population of 7.6 million is larger than that of several EU member states and needs coordination to improve cooperation between the strategic authority, the 32 local boroughs and the City Corporation.

“London connects” is an ambitious project trying to provide a service for staff, elected representatives, business and investors, visitors, central and local government, partnership organisations, European partners and the local community. It aims to improve services and information Londonwide, education training and employment, while cutting costs and providing access for the socially excluded. It wants to raise London’s profile and attraction for business and tourists, and, last but not least, it should increase democratic participation. Citizens would get cheaper, better, more accessible and personalised public services, more choice with faster access while preserving confidentiality. Policy makers would get joined up well targeted services with minimum wastage.

“London connects” aims to meet the e-government target of electronic service delivery by 2005. This can only be achieved by working in partnership with other service providers and industry. Meanwhile it is coordinating the websites of individual London Boroughs and setting up a Londonwide website with an adequate management structure which will implement the e-strategy for London. Electronic links will be created with the Greater London Authority, the national grid for learning, people’s network, lifelong learning, health services, police, government departments (especially the one for London), housing associations which are in charge of affordable housing, transport authorities and agencies and the voluntary sector. A first London Connect conference brought the key players together to establish the work programme. If this project achieves its aims to overcome the fragmentation of access to services reflecting London’s current democratic deficit, London will enjoy an effective e-democracy with an effective communications infrastructure for healthcare, emergency services and an education concordat. It will also act as a testbed of technological goods and develop a commercial content accessible to all, including local business and the private service sector.

### *Discussion*

The main preoccupation of the audience in response to these innovative projects and products was that these services are not able to reach everybody and, in particular, do not include sufficiently different cultures or poorer people and the developing world. Those without Internet connection or mobile telephone are excluded de facto from these new technologies and thus disadvantaged in their job opportunities, as well as in their life chances generally. Even those who have the hardware may not be able to get

training to keep up with fast changing software and are excluded in this way. There should be a possibility to integrate all these ICTs and develop a product accessible to all which includes voice, data, fax, email, text and speech in a single mailbox. ICT training should be part of this package. Experiments are under way in Singapore and the USA but universal application of such a simplified communications infrastructure would require political will and public sector contribution.

## 3. Regulation and Self-Regulation

It is obvious from the presentations of industry and civil society stakeholders that the regulator plays a key role in progressing the dynamics of (tele-) communications. In a fast evolving sector, regulation activities consist of drafting new legislation, revising regulation which may be outdated, implementing regulation and monitoring how it functions in practice.

Regulators' views came from Europe (European Commissioner Erkki Liikanen), the USA (Kathryn Brown of the Federal Communications Commission – FCC and Brian Moir from Moir and Hardman), and Canada (David Coleville of Canadian Radiotelevision and Telecommunications Commission – CRTC). Morocco (El Hadi Chaibainou) was focusing on the legal framework appropriate to the developing world for the fast evolving ICT sector. The industry response was given by Alan Crew Beyer and Marc Fossier.

### *3.1 Regulatory Strategies of the European Union*

**Erkki Liikanen** informed the Global Forum 2000 on the European Commission's e-Europe 2002 framework for the new economy and presented the action plan for the Enterprise and Information Society. The goal to speed up the European information society has obtained political endorsement and was given priority in the EU programme. This means also availability of national resources to implement EU policy. A benchmarking report was presented at the Nice EU summit. The new info-economy will not displace the existing one and links have to be forged to turn the global economy into a knowledge economy. Information would be its prime resource, togetheri with access to knowledge for populations worldwide. ICT will become an essential part of world trade.

e-Commerce should aim at optimum use of digital technology and the Internet. It is growing fast but 80% of total e-commerce serves business to business purposes. A report of Andersen Consult shows that a new business model is required to exploit the potential of global digital communication to its fullest by putting human capacity at its centre. A conference in South Africa has demonstrated how this principle leads to successful entrepreneurship. Europe is only harnessing two thirds of its human capacity. Companies need to reengineer their corporate structures to succeed in global

competition by improving the quality of their communications and distribution networks, thus reducing time to market and costs.

Even if these measures lead to a new state of industry, regulators have their role to play. They have to ensure a few key conditions, akin to current industrial regulation. The EU is hoping to adopt legislation in the near future which acknowledges the need for concentration and flexibility. It proposes international minimum rules for e-commerce to protect personal data, privacy and copyright, to define legal responsibility, and to deal with global cyber-crime and taxation. The EU and the USA agendas converge on minimum legal guarantee, leaving the bulk to complementary market self-regulation. Such co-regulation between government and the private sector has been successful in the Single European Market where suppliers, operators, users and consumers have developed codes of good conduct together. In the case of political disputes, on-line mediation and arbitration should reconcile buyers and sellers. The EU recognises that a global solution is necessary and its rules are conceived as a basis for international discussion.

The history of telecommunications requires special regulation to convert state monopolies into successful companies and to ensure fair competition. Local communications need further liberalisation. A framework for convergence is foreseen for 2001, bringing about cost reductions and better chances for new entrants. At present, 90% of the market is still dominated by incumbents, because they can link up with new connections without duplicating existing networks, and charge prohibitive tariffs to other network users. Unbundling the local loop should reduce Internet charges and stimulate high speed technology for Internet access. The USA is already providing live access to the local loop and the EU intends to solve the problem of the last mile by 2001. It also aims to remove unnecessary rules to increase innovation and competition and to respond to market developments more speedily by adopting existing legislation to convergence without entering lengthy general reforms.

The use of electronic signatures is a key issue which needs to be resolved worldwide in cooperation with the WTO and its Telecommunication Agreements as security is a precondition for growth. A first step is to achieve mutual recognition between the 15 EU member states to facilitate e-trade and to agree on sanctions and crime prevention while preserving the freedom of the Internet.

### *3.2 Regulation in the USA: FCC*

Competition is the organising principle to use powerful technology for people said **Kathryn Brown** of the FCC. This means opening up (tele-) communications markets to new entrants, allowing concurrently for consolidation, convergence and competition. Technology has the power to divide and to unite. Thus universal access remains a key issue. The USA 96 Telecommunications Bill goes some way towards this principle.

ICT is the greatest fuel of the US economy. Due to market reality electronic companies are seeking to make profits either by entering the most profitable fields, such as business-to-business services, or by charging the consumers for dissemination and information, although they are willing to share some information to persuade consumers to buy and sell. Thus, commerce is gaining its own access to information and the Internet while achieving profitability, albeit by making their products and services available only to a limited segment of society.

Universal access to information and its positive spin-offs continues to raise problems. Settlement patterns for one are seen as a hindrance, akin to dispersed settlements and low density areas which are believed to undermine the viability of public transport. Even the subways in the USA have to be permanently subsidised, thus government intervention are a dubious economic proposition in the eyes of the FCC. It has led to little penetration (40%) on Indian reservations in the USA and other means of leapfrogging have to be found.

For example, industry discounts in certain sectors make commercial sense. The $5b which go towards telecommunications discounts in schools and libraries provide an estimated $5b leverage for hardware. A similar approach is planned for healthcare next.

As regards universal access in the developing world, only an international crusade can help to supply it with adequate ICT. It would have to reach deprived populations and raise their awareness of the potential benefits which powerful technologies could bring to them.

### *3.3 Regulation in Canada: CPTC*

**David Coleville** of CPTC presented a more differentiated picture of the role of regulation in the (tele-) communications market, although Canada operates in a similar context as the USA. It too is relying on the market place for competitive (tele-) communications. Thus both long distance calls and the local loop have been opened to competition. However, there is a case for public policy in Canada to ensure access to affordable communication to everyone. Canada is a vast and sparsely populated country where 85-90% of the population lives within 100 miles of the USA border. Universal access presents a great challenge. It requires a clear definition of what is meant by basic telecommunications services. In Canada telephone and fax have become second to email, thus free access to the Internet has become a basic aim. Redistribution will provide future subscribers, especially in remote areas in the public interest. At present, Canada has 98.5% telecommunications penetration and the lowest telecommunications rates in the world. Among the G8, Canada has the lowest Internet access charges.

The fact that the Canadian regulator is an integrated single agency, encompassing telecommunications and broadcasting may have had a positive effect on technological

change and innovation. It contributed to a coherent new regulatory approach during convergence when boundaries became increasingly blurred between the various communications media. In 1995 competition was opened to cable, TV and broadcasting, followed by telecommunications and the unbundling of the local loop. This enabled companies to undertake cross platform and integrated technological developments and build up commercial structures including Internet operations. Cable companies opened up their structures to compete with telecommunications for high speed transmissions. Canada now enjoys the highest highspeed Internet access penetration in the world. Fusion between telecommunications and broadcasting has also taken place. When CTV and Bell Canada had reached a very large percentage of total mail (including the press) the regulator regulated the new media in 1999 but monitoring of progress takes place with the view of further adjustments. Similarly, consumers access to broadband services was limited as oligopolies developed which the regulator is now controlling to guarantee a more open market in this field.

Another issue was how to preserve cultural sovereignty with a few large gate keepers. Unlike other portals, the Internet cannot deny access to distribution systems. However, it needs promotional support with targeted addresses. At present, Canadian web contents on the Internet do not create any problems on the Internet. However, local content is not confined to Canada and can be accessed everywhere in the world through Digital Service Transmitter Distribution (DSTD). This system can sustain regional content providers to which people are not indifferent. New media complement but do not replace traditional media.

The CRCT has undergone its own convergence. Broadcasting and Telecommunications Acts have changed its remit as regards competition, adjusted its regional structure and changed the participation on committees by admitting industry and other private sector partners. In 1998 CRTC was instrumental in dissolving boundaries between broadcasting and telecommunications despite Bertelsman's interests.

Communications companies developed an appetite for other information technologies as producers or service providers. In future, even new technology standards will be overtaken by the dynamics of this sector which will open markets for new services. The message is to use convergence positively.

### *3.4 Appropriate legal ICT Framework for the Developing World*

The digital divide preoccupied **El Hadi Chaibainou**. For the developing world the digital divide is a reality and may lead to a legislative divide. It is thus important to put into place a legal framework which can accommodate change while guaranteeing fairness and access to information for the whole population. Exposed to commercial pressures and international inward investment, developing countries may encounter a new form of poverty which concerns consumer protection. Regulation differs widely between the

North and the South, the latter having weak legal frameworks and suffering from inequality in the transfer of technologies.

Traditional legislation is not capable to cope with the speed of ICT development which tends to overtake new legislation. In response to such fragmentation and weakness, developing countries have to underpin technological development with appropriate legislation. The framework for convergent legislation has to clarify what should and should not be regulated, and relate to other legislation, contract law, and international conventions. Proposals of change should include secure transactions (electronic signature, fraud and pirate activities), dematerialised contracts via the Internet, and the protection of the stakeholders (privacy, consumer protection, and new competition rules).

### *3.5 Industry Response to Regulatory Issues*

**Alan Crew Beyer** proposed that innovative regulation needs to address bottlenecks. Telecommunications regulators have played a crucial role in maintaining the quality of networks while safeguarding the need for public communication. Priorities should remain delivery of high quality infrastructure, stewardship of efficient markets, provision of effective methods of interconnection, and understanding of customer needs and the transformative qualities of the Internet. Vigilance is of the essence for innovative services and should apply to all four parts of the service chain: local plant, network services (routing protocols and packet structure), new applications (voice over IP, data encryption, video) and content (transactions, conversation, communication). The local loop remains the least competitive element of this chain and warrants regulation. Otherwise it will remain the least innovative area for content providers.

Consumers are taking more options to buy and opportunities to communicate and educate themselves via the Internet. This provides great opportunities for consumer services, electronic product sales, and interactive capability on the Internet generally. In turn, these commercial developments require access to regulated telecommunications networks and adequate network capability. Only thus can companies fulfil their aggressive growth aspirations, their expansion in network coverage and their goal to offer global services through an increased usage of the Internet. This would also enable them to personalise customer relations, and protect against fraud and network interference.

**Marc Fossier** who had experience in both regulatory activities and in the private sector pointed out the sector changes from 75% of fixed telephony in 1995 to half that in 1999 with a reduction to 20% expected by 2003. Thus incumbent companies seek growth in other areas of communication and abroad where they tend to have more control over their investment. It is essential for them to become discussion partners with national and supranational regulators. They stimulate regional regulators in the light of global competition. A shift is needed in regulation from old technologies (separate telephony) and institutional situations (e.g. telecommunications monopolies), together with

harmonisation of new regulation for firms to remain competitive in the global market. While the private sector wants less regulation, it is adamant to shed the old fixed telecommunications regulations first. New regulations have to encompass all actors and all transnational operations.

Despite WTO Agreements, discrepancies arise because the developing world cannot follow the pace. Japan has delayed opening its markets and the USA retain restrictive practices, as do the incumbents in many other countries. Regulation should keep a neutral position vis a vis technologies, reinforce regulation where needed and adjust to innovative processes across technologies. It is open to debate whether fixed telecommunications regulations apply best to mobile telephony, how interconnection with existing networks in the hands of incumbents should be handled, and whether similar regulations of other value added services should apply to (tele-) communications services. Co-regulation and continuous dialogue between industry and regulators may be the only way forward to find the right balance between technological innovation, commercial interests and services which benefit the consumer fairly. The global business dialogue of the Economic Commission is one such forum able to bring these issues forward.

### *Discussion*

The regulation issue provokes heated discussions. Universal access was seen as the most intractable regulatory issue. What instruments can be developed to deal with all types of divides, analogue vs digital, rich vs poor, urban vs rural, North vs South. Will total inclusion ever be possible? And at what cost and who should provide the resources?

If regulation is to enhance competition, this should be seen in the context of broader aims, such as consumer satisfaction, or industry aims, such as highspeed infrastructure. But even then, political questions remain regarding prevalence of consumers or markets. Should markets subsidise consumers directly, for example in remote areas, or is overall access a redistributive responsibility of government, or of international funding organisations? Is such a top down approach the only one or is it possible for local communities to finance their own infrastructure, and should they be expected to do so in all circumstances? If the organising principle is competition, technologies will develop on their own and it is up to world subsidy to attract investment universally for their applications.

Digital divide is also perceived as a social and cultural problem. But there is an issue of equity. Esquimo children who have access to the Internet have the opportunity to gain a view of the whole world, while other cultures where technological and other CNESorship applies may create their own future divides. Indiscriminate access to information could also be construed as a leveller to the lowest common denominator.

Which technology would be most able to provide universal access was also debated. The problem with making PCs available everywhere with industry donations is their shelf life. Mobile telephony with Internet connection may be more flexible, but the problem of access to liCNESes remains, showing that market efficiency cannot guarantee equality and equity. Finally, neither terminals nor other telecommunications infrastructure are necessarily giving access to knowledge which may be implied by universal access. Differential access to multimedia or television channels and content restriction for cultural reasons is also creating problems at the global level. Here the question is who should have the final say and control over what consumers want and get?

## 4. Competition and Industry Regulation

Competition is intrinsically linked to regulation and markets which regulate - in theory - supply and demand. Competition cannot exist unscathed without rules, but it highlights the need to distinguish between deregulation, liberalisation and re-regulation. **Shigeko Naoe** pushed the idea of global convergence to its logical conclusion. It would mean a single industry without sector and geographic difference. This would imply total convergence of regulation, regardless of social and cultural aspects, nor differentials in current levels of development and access to technology. As much as deregulation is accepted and the fact that it does not mean competition without rules, this leaves the problem of differences in starting points. Old established industries have different competition agendas from new entrants with new business models and corporate structures. On the demand side, there are wide varieties in access to technologies and services. Globalisation is bound to preserve different business cultures and differentiated solutions have to be found to accommodate competition locally as well as globally.

### *4.1 Link between Regulation, Technology and Competition*

**François Belorgey** has tried to bridge the issues of regulation, technology and competition. He considers that telecommunications present a scattered perspective. There is a global recognition of a need for regulation. The question is at what level for what purpose. Which aspects should be dealt with globally, nationally, regionally or locally and how should regulations devised at these various levels connect?

Information technology is not in the hands of government. Industry is the driver of ICT development, but governments can play a role through education and economic policy. In France, for example, telecommunications schools have increased by 50% over the last few years. The number of students has moved from 1000 to 1500 and researchers and teachers have increased from 400 to 600. This reflects the need for change in the relation between industry and an increasingly qualified population. 80% of technological innovations rely on ICT, thus ICT is a necessary contributor to innovation. Akin to the USA, France has a standing council for high technology, similar to its councils for

energy and other scientific issues. Some twenty key industries are represented on these councils which they see as a vital access to the Prime Minister.

Current policy issues which industry intends to influence through these and other channels are the next round of MTS auctions. They see three options:

1) MTS can aim with its auctions to maximise the government's budgetary resources; this would attract virtual finance and may jeopardise the extension and completion of necessary infrastructure;
2) Auctions should be split into tranches and charges levied separately, possibly 50% before and 50% after completion of the proposed infrastructure;
3) Telecommunications legislation should be changed and reach the financial highway; it would be possible to organise single levies akin to what happens for petrol.

### *4.2 Regulation and Competition from a Legal Point of View*

**Andrew Lipman** distinguished between regulators and amateurs. As the demise of overregulated regimes has shown time and again, they can fall into chaos, anarchy and sheer lawlessness. A balance needs to be found for public sector regulation in a dynamic sector such as (tele-) communications and ICT convergence. Universal services at reasonable rates is an old idea, challenged by new businesses and innovative services which need new regulation. This explains why incumbents are more regulated than newcomers in this field. The ITU has given universal support for Internet traffic flows and Internet connection costs of backbones, except for North America. This shows the need to eliminate government oversights or to acknowledge monopoly trends. The point is to destroy existing bottlenecks and avoid new ones to prepare the ground for global competition.

What is meant though by proper regulation. Competition is the cornerstone of telecommunications deregulation, but this sector can only develop with the right balance of regulation. Competition enhancing regulation should be encouraged while outlived regulation should be eliminated. Government is not there to manage change but to develop a framework for resolving conflict and spreading fairness. This requires to deal with former monopolies, and to accept that the industry cannot rely on market forces alone. Most importantly, government has to get involved in resolving disputes rapidly instead of leaving it to the courts, which is expensive and slow.

An interesting example is New Zealand which had the most deregulated telecommunications sector of the world. There was no need to regulate former monopolies because there was no transition period to develop competition. What it meant in reality is that New Zealand has now a duopoly which does not require telecommunications lawyers as there are clear connection agreements and there is no local market competition either. It would be better in these circumstances to have some pro-active regulation for new entrants to accelerate competition. Otherwise, without any market incentives, New Zealand may fall behind technological developments elsewhere.

### *4.3 Industry Views of Competition and Adequate Regulation*

Due to convergence, (tele-) communications industries represent a broad spectrum of activities. They range from provision of infrastructure and related services (**Ann LaFrance)** and large scale users of (tele-) communications such as air carriers (**Kim Ambler**), to specialised operations such as setting up and running Intranets also for the public sector (**Thierry Mileo**). It included linking mobile telephony to diversfied service provision and virtual reality (**Jean-Paul Tran Thiet**), as well as cross platform multimedia and audio-visual content provision (**Jean-Francois Tournu**).

They all asked whether it is wise to shackle the Internet and prevent the private sector from pursuing growth freely. Upper level and content regulation may be difficult, but regulation of any Internet activities which reach across 65 countries may not be feasible, a point taken up by ITU's Montreal recommendation. The lifting of other 'commercial shackles' may be more problematic as markets tend to create oligopolies through concentration. 50-70% of European (tele-) communication and Internet traffic stays in Europe with European content. More than half of the websites visited in France and Germany are local, but the fear of balkanisation of the Internet may not be justified. There is a worry though about mergers and the disproportionate market share some companies could obtain. Thus international organisations like the European Union and the FCC are scrutinising such mergers and acquisitions while industry is appealing against what it sees as politicised regulatory policy. Different industry stakeholders demand regulation for the local loop, mobile charges and termination rates, fixed to mobile rates and other connected issues, while industry considers Internet backbone provision competitive enough and claims that regulating it would be counterproductive. There are many unknowns though, including future consumer demand for m-commerce, ubiquitous broadband availability, freeserve model with telecommunication charges, and the impact of industry consolidation and convergence.

For a large scale user of ICT who is invariable also a provider of ICT business applications at national and local levels, as well as for individual users, there is a difference between (tele-) communications and the Internet. Telecommunications constitute an inherent component of large companies while the Internet can enhance services, provide protocols for cross communication and constitute a resource for product and process development. Thus different regulations should apply to these two areas, which is reflected in the Uruguay Round of WTO. Regulations need to be enlightened. Only limited government intervention is needed to foster competition, curb restrictive practices, ensure enhanced services without discriminatory interconnectivity, and preserve the public interest when setting rate levels.

For those dealing with other media such as highspeed wireless communication, Intranet provision for local authorities or analogue and digital media distribution such as radio and television, regulations should focus on frequencies and availability of communication capacity such as broadband and highspeed channels provided by

different types of communication hardware. As the local loop seems to be the bottleneck for many applications, efforts are made to circumvent this problem by serving the local loop by high speed radio with a fix point to multipoint hertzien technology. This would give small organisations access to Intranets which are currently excluded, especially in the public sector. Large cities are most likely to be 'wired' and often share their black fibre infrastructure with other users. However, there is great latent demand as municipalities believe that speedier, better and more reliable communication infrastructure would enhance their competitiveness for inward investment. Speed depends on the access technologies, ranging from the slow copper wire to modem with telephone and cable connection, local radio loop (LRL), ADSL and fibre optic. Greater use of the local radio loop requires new and simplified regulation which should not discriminate between various technologies such as LRL, ADSL, nor between operators, clients and other network providers. Such a structure would improve and accelerate local services, as well as on-line interactive citizen information and participation.

Competition of mobile telephony exists as networks are growing exponentially, together with connections. New licenses are auctioned and may admit new entrants bringing new WAP and other technologies on stream. Nevertheless, more openness is needed as interconnectivity is not yet satisfactory and links with fixed (tele-) communication continue to present problems. In France, for example, mobile operators are few (3 GSM/DCS and 4 UMTS). Thus there is scope for Mobile Virtual Network Operators (MVNO) to enter the field as well. MVNO do not have their own network. They pay to use third party networks but have their own clients. There are different modes of accommodating MVNOs. Many existing ones seem to have their own fixed network together with SIM cards and own HLR and AUCs (eg. Virgin, One2One,Sense). Their access to third party networks is guaranteed by law, although the principle of cost based tariffs is not applied universally. Existing mobile phone operators however can use UMTS in the future as alternative to roaming and they could forge agreements between them. These are clearly many new issues for the regulator to deal with.

In the audio-visual field it could be construed that the now discarded MORSE was the first digital communication system. Meanwhile, TV is evolving from a passive medium to an interactive one. Besides regulating content, regulators manage frequencies of digital TV to ensure operational capability. Rich, diversified and high quality of programmes and associated services require better quality of reception. Different transmission options range from terrestrial to cable and satellite networks. New entrants may handle mobile reception. Better access to existing infrastructure such as cable would improve the situation but viewers demand more choice including cultural and content diversity. At present, France has six terrestrial channels which control the 30 multiplex channels de facto as they are broadcast on their range of frequencies for analogue TV for which they hold licenses and which they intend to protect. Service by service approval is expected to satisfy pluralism, but regulation is needed to sustain diversity. Community or local TV is a special case and may require special subsidies. Transition from analogue to digital broadcasting has to occur quickly to maintain economic equilibrium. Free access is likely to diminish while more pay TV is introduced, as proprietary systems should not be discriminated against. The bands of digital TV are

not accessible to analogue TV, but 98% of the French population are expected to have access to all these TV channels. 20% emitters cover 80% of the area but the cultural operators have to be shared countrywide.

### *4.4 EU Position on Audio-Visual Regulation*

**Aviva Silver** reported that the EU has a sectoral policy about audio-visual communication because it acknowledges its economic, social and cultural importance. The Green Paper of December 1997 dealt with the convergence between telecommunications and audio-visual media and proposed changes and regulations which were required to open these convergent media to competition. People objected to total deregulation of TV content and in response the EU published another Green Paper on TV content in December 1999. It addressed the protection of children, as well as the preservation of languages and nationalities. These papers formed the basis of debates on an European audio-visual strategy.

The audio-visual sector has a direct influence on democratic, cultural and educational issues and TV plays an important role in these fields in Europe. Regulations for networks were separated from those for content and the proposal of July 2000 relates only to the transmission of audio-visual communication.

Implementation of “TV without frontiers” raises issues of concentration and its impact on content. It also concerns the impact of the Internet and digitalisation of the audio-visual sector on employment. The proposed regulatory framework is adapting economic and technological aspects of audio-visual media to market principles. As regards content, the EU had commissioned a study on children’s use of audio-visual content and what effects the application of quotas, new audio-visual technologies and other (worldwide) concentrations had on them. Another study dealt with the commercial evolution of TV and other forms of audio-visual media generally. It looked at the impact of mergers (such as Vivendi) on content and found that if networks only merged this had no adverse effect on content. Regulations aimed to achieve the political objective of improving reading of the EU population required flexibility. They are incorporated in the latest EU TV Directive which will have to be implemented by all fifteen member states, despite cultural and commercial differences. This would guarantee symmetry of conditions. Otherwise, operators would only be motivated by relative advantages which specific positions in different countries would give them over their competitors.

### *Discussion*

Integration of the audio-visual sector into (tele-) communications generally is progressing rapidly but the regulatory framework remains fragmented. Liberalisation has made telecommunications regulations obsolete. Applying them to the Internet or (tele-) communications convergence generally would go against the grain of other sectors and counteract current negotiations and regulations on trade enforcement. Competition councils deal with dominant operators and powerful mergers in many

countries while the local loop remains uncompetitive because incumbents are still favoured, especially in financial markets.

Independent national regulations try to introduce competition to national monopolies. They aim only at consumer issues and not at financial markets. But as incumbents in one country can become new entrants in another, such regulatory fragmentation is not justified. Conversely, if the audio-visual sector was without national regulation, the number of radio stations would shrink dramatically, thus jeopardising cultural diversity and depriving local communities and interest groups of outlets.

At a more general level, a distinction was made between regulation and 'reglementation' (proscriptive regulation), keeping in mind that the regulator is not a censor. The objective of regulation should be to satisfy consumer demand, not to save existing or new operators, as protectionism could block new technologies. The little innovation which emerges from limited markets confirms this. Others thought that regulation in favour of incumbents could act against both consumer interests and new operators who would lose market shares. Often government owned entities have government regulations and get fair access to capital while others do not benefit from a level playing field. Even in the most liberalised countries Internet operators may face a monopoly situation as it is dominated by American companies, due to the fact that the Internet is not subjected to antitrust laws.

## 5. Competition Strategies and Management

### *5.1 Standardisation*

Paradoxically, standardisation facilitates competition. The European Technical Standards Institution (ETSI), a similar but more specialised agency than the International Standards Organisation (ISO), has developed voluntary standards in the (tele-) communications field over many years. ETSI, endowed with 20 m Euros, brings together commercial organisations, regulators, industry, operators and other interested parties representing governments and other agencies. **Bridget Cosgrave** noted that ETSI has also managed to coordinate technical standards of the EU and the USA successfully. 800 members subscribe to the GSM standard. 3GGP is a third generation competition project supported by 7 organising bodies and 400 companies. It aims towards global standards for third generation communication. A public safety project incorporates the USA. The smart card platform project for the global consumer seeks a generic mobile communication application to serve consumers and foster industrial cooperation.

### *5.2 Global Liberalisation?*

From 1987, the FCC has opened up all its telecommunication markets claimed **Kathryn Brown**. From 1987-95 telecommunication competition focused on long distance market

with 999 carriers offering commodities and services. The local market is a consumer based concern including residents and businesses linked in any way. Divestiture was imposed on the largest companies such as AT&T, Bell and others. Interconnections have become public. The 1996 Telecommunications Act provides for unbundling and interconnection. It defines the rules to implement competition. Juridical struggles followed with incumbents. Court cases lasted three years with the FCC about the definition of unbundling, interconnection, pricing. Incentives for long distance markets of voice and data transmission were laid down in the conditions for local providers to enter the long distance market and to compete or cooperate with other suppliers in partnership. For facility provision the incumbent became the wholesaler and resaler. This amounted to a change of culture and required regulations to reinforce the rules. Incumbents got together with investors to create new infrastructure and to expand their services. Wireless auctions led to a duopoly which was a mistake as opposed to what happened in Europe.

The Internet is next as it was not included in the 96 Act. Digital information systems can run over every stratum, as opposed to traditional infrastructure development and access culture. The relation between distribution systems for data, voice and video puts pressure on regulation as there is a need to reconcile large users' views and those of end users who want non discriminatory wire connection.

Regulations for content, intelligence and 'can do' aspect of systems work at bottlenecks in transport layers of infrastructure. A shift of focus on bottlenecks of networks includes all technologies except the telephone. Convergence of traditional companies means they expand value added and content delivery. There are difficulties with consolidation which strangles the market and especially horizontal and vertical mergers. There is a need for a new definition of 'market' as a global challenge. FCC policy is open trade as opposed to protecting individuals and democratic acts.

Government has a care role. A priori it is involved in legislation, its post hoc position is control and vigilance to open every market. As regards governance, no nation governs ultimately but there is a need for continuous dialogue between policy makers.

### *5.3 Conformity Continuum*

**Robert Morin** considers that regulations have to reinvent themselves continually. This is true also for e-transmission of anything anywhere. Canada's watchdog of compliance to legislation evolved from an information bulletin to a competition bureau which has devised clear principles and coherent and comprehensive goals likely to be observed by the business community. It focuses on three areas: conformity through education, (publication, communication, advocacy), facilitating conformity (monitoring, voluntary compliance), and responses to non-conformity (persuasion, consent, adversarial). [Morin dia 5 table]. Its approach is targeted, transparent, bureau-wide and consists of a toolbox of instruments to implement conformity to legislation and regulation. Its means of operation are education, partnership and conformity programmes for industry. With

these methods the bureau enjoys better informed staff, better informed stakeholders, greater opportunities for partnership and targeted response to non compliance. It took two and a half years though of consultation to agree on rules despite internal and external resistance, in cooperation with universities which have kept a lasting interest in the process.

### *5.4 Knowledge Management*

**Michael Stankosky** presented his theory on how knowledge management can provide new wealth and connectivity in the age of the Internet. Knowledge is the basis of competition just as innovation is the key to sustained growth. Thus the only sustainable competitive advantage is to learn faster than competitors. The way information and knowledge is managed will determine the speed of learning and understanding. While information technology is on the rise, it has a growing impact on the global economy. With ICT, the paradigm has shifted from economies of scale to economies of scope. This includes 'just in time' delivery of products and services, emergence of global mobile computing, enterprise architecture, application specialists, software engineers for the future, and emergence of adaptable, survivable self healing systems. Liability management will have to become part of the software development process.

It is necessary to distinguish between adaptation and exploitation. A Net rush would mean a lasting Internet boom. Instead of purchasing brand names and cyberspace the only vested 'capital' would be the human resources and their knowledge. Power would consist of sharing knowledge and companies would succeed because of competitive intelligence. ICT has a profound impact on the global economy. It provides choice of education, where and how to live and work, way of communicating and moving physically. It changes information on science & technology, and health, as well as defence of the national interest.

A customer-centric company would have inertia in its relationships. Conversely, global open value webs are cooperative ecosystems which constitute the 'swarm' economy and its fluid networks. Nevertheless, complex adaptive giants dominated by oligopolies remain in the game. The way they handle knowledge is changing though. While e-business requires reliable, scaleable, secure systems for customers, partners and international organisation, the Internet remains open, yet it generates an overload of unstructured information. This requires navigation skills which are turning into a new competence.

Knowledge is fast becoming a primary factor of production according to Handy. Many other thinkers and captains of industry have redefined the meaning of knowledge [Stankovsky dia 11]. Hence the growth of knowledge management since the early nineties. Knowledge management draws on many contemporary disciplines and relies on many skills, ranging from systems analysis to leadership [Stankovsky dias 12 & 14]. Knowledge management is used to restructure companies by tackling leadership, organisational, technological and learning issues [Stankovsky dia 13].

Knowledge management is relying on ICT for corporate knowledge transfer between generations, information overload, performance reporting, accessibility to information and users, interchange issues and integration of ICT systems. The link between knowledge management and ICT is also instrumental in developing new tools and processes to improve traditional management and to break the culture of resistance to change. Combining innovative management principles and latest ICT lies at the heart of a new enterprise strategy for the 21st century [Stankovsky dia 16]. E-creation in a networked world is the knowledge management tool for the future.

### *5.5 Think Tank on the Future*

Agreeing with the value of the immaterial world in wealth creation **Cecilia Fraenckel** presented a new portal which combines reality with virtuality in a technological neutral mode. A partnership between an ICT hardware producer, a telecommunication company and a client organisation in the construction field is exploring innovative processes which for them occur on the fringe of their mainstream activities. Clearly ICT and the Internet will have a significant impact on the structure and function of cities in the future. The partnership thus sponsored a report on the City of Tomorrow by John Malingo. It examines in depth what makes up a safe city, without intrusive surveillance regardless of class, gender, ethnic belonging. It proposes 'the simple city' which is user friendly in the public realm subject to rules respected by all for the future. These ideas are discussed at open seminars attended also by the general public. The output of these investigations should provide answers of how competitive advantage can be achieved with social responsibility.
www.futurecom.factory.org

### *Discussion*

As **Brian Moir** pointed out, there was confusion about the meaning of regulation, deregulation and reglementation and re-regulation. Institutions like the FCC are still in essence price regulators of traditional utilities. They secure a guaranteed rate of return for distinct quality and level of services. But with technological advances in ICT and convergence, regulations become more diversified. Competition is not restricted to price but includes level, type and quality of service. Regulations have also to deal with imperfect markets and cross subsidies to prevent the occurrence of new monopolies and to create level playing fields. Unbundling technologically feasible parts with a cost price structure is one such method. However, separate regulation is not necessary where anti-trust laws exists.

Another question was what area should regulations cover. NAFTA constitutes an economic unity in North America, but the member countries differ widely in culture and customs and may warrant differences in regulation and application of rules. In Europe, two models seem to apply to technological and institutional change: regulation before and deregulation to even out market inconsistency. Market power still does not apply to

more than 2/3 of lines and there remains a problem with opening up all lines to competition while preserving service quality and safety. In theory, a fully competitive market would not require any government intervention, but such a situation does not seem to occur in reality. 'Natural monopolies' such as water companies need third party intervention. Certification may be the answer for natural monopolies instead of regulation to safeguard service quality levels and prevent resources to be diverted from captive customers. This would imply that customers have access to full and transparent information on levels of quality and performance, such as for the airline industry where it is possible to compare competitiveness. So far, the issue of quality and safety remains paramount, especially with industry concentration, which may well increase capital and expertise but reduce choice. Once a telecommunication company has reached a critical mass for its footprint it is not exposed to serious competition. Similarly, the dominant airlines have unfair competitive advantages without cabotage. In these cases, regulations have to restrain historic advantages of incumbents, ensure open markets and impose effective penalty clauses.

## 6. Innovative Applications

Innovation is usually driven by successful commercial companies in their effort to remain competitive. Regardless of whether (tele-) communication companies are hardware or software producers, carriers, portal holders or service providers, they have to evolve in both technological and commercial terms. However, the discussion of knowledge management shows that innovation is also needed in the 'soft' areas of progress. The need for innovation in the social field receives the least attention, although it is crucial for a balanced and inclusive information society.

### *6.1 Dealing with Exclusion*

Lifelong learning schools are becoming one of the pillars of the emerging Information Society. **Edith Cresson** gave examples of how ICT could assist young persons to find their way back into mainstream society. Many youngsters depend on a second chance after an unsatisfactory start which often left them antagonised against learning institutions. Many lack social skills and are unable to integrate into society and the world of work in particular. They need special attention to develop their identity in new style educational establishments and during placements. ICT plays a crucial pedagogical role as, unlike judgmental tutors, computer assessment is neutral. These dysfunctional youngsters have no lower IQ than their peers but are not trained to learn. In Marseilles an experiment is underway with some 250 teenage students. Subsidised by the EU and the French government, it offers academic and vocational training based on formal agreements between ICT companies which provide the infrastructure and technical know how for these establishments. Such cooperation enables students to leapfrog and become computer literate very quickly. They receive accreditations for their know how in different subjects (i.e. IT skills, languages, marketing, business management). They progress according to a learning pace adapted to their abilities and end up with learning

skills rather than quickly redundant technical information. Evaluation will show whether this scheme is worth applying countrywide and perhaps across Europe later.

**Larbi Ajjoul** addressed exclusion in the developing world. By now, the digital divide between the rich North and the trailing developing countries has become a reality. Acknowledging the great differences among developing countries, they share gaps in access to science and technology generally, besides timelags in infrastructure provision, including (tele-) communications. Four fifth of the population of the developing world have no access to basic ICT tools. This jeopardises economic growth based on knowledge transmitted by ICT. Despite deregulation efforts, monopolistic situations tend to persist in developing countries and delay much needed inward investment. Digital and other divides exist also within countries themselves and between developing countries, not only with the well endowed North. The international community raises awareness of these divides at high level economic and social conferences but with little effect, as the Barcelona Forum on the Mediterranean has shown.

The information society has to be a secure society submitted to the rule of law, but it also has to be open and ready to share its assets globally. There is an issue of trust as regards citizens, without which there cannot be democracy and solidarity. In this context, access to ICT is seen as a social justice issue and not a matter of privileges for some. Marginalisation through ICT segregation may be worse than nationality segregation and is central to human dignity which includes intelligence and knowledge. Failure cannot simply be laid at the doorstep of deprived nations while success is claimed by those with a privileged starting point.

**Helena Lindskog** dealt with the time divide. Information society tends to increase the division between the 'time rich' and the 'time poor'. Time is becoming the most challenging resource unequally divided in both technological - economic and humanistic terms.

Technically it is not possible to either 'save' or 'kill' time, but busy executives 'save time' with technological and mainly ICT tools, while pensioners or the young and the unemployed see themselves killing time as they are excluded from mainstream development and wealth. ICT based organisation of time and activities is a relative notion but time in social terms is growing in importance. It has a significant impact on how human activities and their values are perceived and points to the changes required for the future. The traditional divide between job and leisure is a black and white perception of reality. Boundaries are becoming increasingly blurred between work and leisure and more choice is available in a new continuum. Time throughout the whole lifecycle can be shared or alternated between 'output' (work in a job, as a voluntary activity or a family obligation) and learning or personal development. Individual contribution to society and its economy can take place alongside self-development as contribution to human resources assets. In a fast changing world, where work has become mobile in terms of employment and geography as well as usefulness, adaptation through life long learning has become a necessity. Moreover, with later and

longer schooling and longer life expectancy, learning is being extended into the retirement phase which is less sharply divided from formal work.

What counts at present is the relationship between time and money. The current divide between 'time poor but rich' and 'time rich but poor' is shifting towards 'time rich and rich' and 'time poor and poor'.

Market segmentation based on time does not affect new ICT applications significantly. However, access to time is dividing society and it is important to classify people according to the time divide as well as the digital divide to understand future demand for ICT.

## 7. Electronic Government and the Future of Electronic Democracy

This field has constituted a focal part of the Global Forum since its inception. It interests all types of stakeholders because it represents a large and dynamic market, albeit a fragmented one which requires differentiated responses. The dynamic take up of ICT applications in public local administrations can often be related back to the ICT literacy of local politicians. Some have their own ICT firms, others have been developing capacity with outside companies while improving their own ICT knowledge. Annual exchanges of experiences brings mutual benefits to those present and show how fast ICT applications for civic use is moving throughout the developed world. The next step should involve countries from the developing world more as they are keen to enter the information age.

### *7.1 ICT Developments for Civic Use*

**Ellwood Kerkeslager** identified gaps in ICT application for civil society. While many developments are taking place at the local, city and regional level, this leaves a gap at the national government level on the one hand and at the personal individual level on the other hand. The pursuit of developing electronic government should close some of these gaps. The next step in Madison New Jersey USA is to move beyond electronic government to electronic communities, linking up city government, business, education, NGOs and individuals and families.

**David Wood** had to handle the ICT needs of a very divided city, which required attention to individual wants, as well as to collective needs at every level of city and district government. This was a driving challenge to reach out for advanced technologies and innovative solutions. Many of these practical innovations to assist citizens in obtaining better public services have succeeded. Newcastle-upon-Tyne UK is a city with enormous structural problems. It aims to develop a learning culture despite low taxes at local level and curtailed powers of local administrations in the UK. A survey showed that up to 70% of citizens are keen to access local administrative data from home, but less than 10% are willing (or able?) to pay for them. This meant working in partnership with

industry to provide information through intelligent digital TV and assist the poorer citizens in gaining access to these facilities without paying. User related information (URI) is an essential tool to increase social inclusion and to adjust services to individual needs. This effort is seen to improve the local economy because it enables the local government to match demand and supply in the job market and in other fields. One internet project was instrumental in attracting marine and offshore technology companies linked to the oil industry in adjacent Scotland.

**Bruno Peeters** mentioned that Antwerp was a founding member of Global Cities Dialogue because it wanted to re-conquer a position in the global world which it had held historically through the diamond trade. The nine visions of the ICT based future of Antwerp were developed in technopoles and visually transmitted to citizens through the Internet and CD Roms. An e-government portal is providing one-stop services which are interconnected, vertically integrated and conceived from the bottom-up. The aim is to reach a 100% consistency in the organisational structures and functions of the city, with the inherent risk though to repeat mistakes. The method of resolving conflicting interests of this proactive administration is to seek consumer suggestions through interactive electronic communications networks which are made accessible to all in schools, libraries and kiosks. Civil servants are assuming new roles and deal with resource management and new end criteria for which they are given new skills and training. The aim is to provide a socially acceptable future also for 'redundant' people.

**Francesco Foffany** talked about global coordination in Venice. E-government is not only conceived as a communications system but is creating information itself. Best practice e-government is structured into several levels resulting in a tool for communication with citizens. Cross-application and internal coordination between sectors and with outside agencies take place at lower levels but are networked throughout the management system. The impressive service delivery architecture was explained in detail, showing the benefits for the local authority, the service providers and the users. It encompasses all electronic means to simplify links between the administration and citizens. This will no doubt generate better statistics for monitoring and decision making but like everywhere else, it means less physical contact over the counter thus weaker direct dialogue. The trigger was new Italian legislation which devised new local management and planning systems. It also includes building subsidies for Venice to deal with serious erosion problems from the sea and tourists. A common ICT and physical infrastructure for the city as a whole should enable better solutions.

### *7.2 The role of International Government and NGOs in e-Democracy*

Many international and intergovernmental institutions are promoting ICT for civic use. They are deemed to provide the framework for a global e-society. **Valentine Reilly** presented the EU research support in telematics for e-government administrated by the European Commission. The programme responds to two priorities of the fifth ET RTD framework programme: information Society Technologies and Systems and Services for

Citizens. Like previous calls for proposals, this programme was oversubscribed fourfold. Changes in the financial environment had to be addressed as they affect ICT applications in business as well as civil society. Studies have shifted from 'business to business' to 'back to banking' and from 'business to consumer' services to 'back to consulting'. Types of projects include discreet and generic services as well as service delivery platforms. The aim of the programme is to forge closer links between the research community, technology, the financial world and society.

Outstanding issues for the future concern customer centricity, third party service provision, combination of e-commerce and customer/client handling capability, front office personnel in public offices, social acceptance and multi-lingual applications. Only a clearer notion of 'smart government' will be able to accommodate answers to these new developments and requirements. The practical objectives for Europe to catch up with its competitors is a cheaper, faster, secure Internet, investment in people and skills, and stimulation of the use of the Internet. Research on e-voting, 3-d urban planning, public information and security should generate new solutions. Successful e-Europe needs to speed up its reaction to new technologies and enhance cross border cooperation between member states and industry. Providing better services means increasing efficiency and transparency, speeding up standard processes for citizens and business and opening up public sector information for citizens, research and business.

**Jean-Pierre Quignaux** focuses on new technology policy for the family. The federation of family associations wants to assert the pillar position of the family and obtain benefits from ICT applications. Universal access to the Internet is a central aim. Information should be freely available, respect human dignity and freedom of expression within ethical limits. Families focus on electronic content using technology as a means to control it. Genetic browsers should enable parents and educationalists to screen and control what children see. Thus citizens should be in charge of regional regulation. Automating the nature of content for safety carries its own security problems though. Furthermore, citizens should have access to all information held on them with the right to correct it and eliminate inaccurate elements.

There is also a need to create synergy between non commercial Internet uses and e-commerce to sustain non profitable activities. They should include the distribution of social benefits to families and the setting up of intranets between family organisations without making families entirely dependent on electronic services.

### *7.3 Cooperation between Local Administrations and ICT Industries*

**Stephan Brunessaux** has been working on the ICT industry side to develop the tools for electronic voting in dialogue with potential clients and users. This innovative cybervoting system for Internet terminals and mobile phones is based on trust of electors in the electronic voting system. The partnership included industries (mobile telephony, network provider and communication technology specialist), universities in Belgium and The Netherlands, and cities (Bremen in Germany, Issy-les-Moulineaux in

France, Kista in Sweden) which constitute the interface with the final users. Within the EU research programme, the objective was to demonstrate fully verifiable on-line elections, guaranteeing absolute privacy of the voters while using fixed and mobile Internet terminals.

At present e-voting systems are limited by preferred servers which cannot guarantee, however, voter's privacy and correctness of election results at the same time. These communications present also security holes when voting from a WAP phones due to encryption and decryption mechanisms of WTLS and SSL protocols.

A successful cybervote system will be designed for municipal, regional, national and European elections and comply with EU legal requirements. It will integrate a highly secure and verifiable Internet voting protocol ensuring authentication of the voters, as well as integrity and privacy of their vote while voting securely from mobile and fixed Internet platforms. E-voting will rely on a scalable distributed trust approach guaranteeing total privacy of the vote even during the audit for the election.

Trial elections will take place in the member cities. In Bremen, it will apply to regional elections of the board of representatives of employees (300000 voters). In Issy-les-Moulineaux 53000 citizens will be consulted about a general interest topic. In Kista a citizen driven network of 5500 members will vote at city borough level by using a city-wide broadband Ipv4/v6 network with ubiquitous access. A special interest user group on cybervote is following and influencing the whole development process. It is open to international authorities and user representatives.

### *Discussion*

Joined up government presents challenges for the Internet because of institutional barriers and technophoby. There is also a problem of user acceptance. These are worth overcoming in the light of benefits of social inclusion brought about by cybercities and electronic assistance. Public sector employees need special training and a cyberbus at popular events can familiarise the general public. If the use of e-government brings direct benefits easily to people such as service provision and job search they will use it. Inclusion means that anyone, also senior citizens who want to learn about ICT should be able to do so. The more institutions are joined up, such as libraries and universities, the broader the access to information. All this presupposes the existence of electronic infrastructure which may not be available in third world countries and thus deprive a large part of world population. But in the world of the strongest, dynamic cities take advantage of their networks, such as Telecities, to improve and broaden their information capacity and share it with other fast progressing cities. This will ultimately lead to a global users dialogue with useful feedback for service providers.

There may be a danger to damage traditional businesses and service provision by concentrating entirely on the introduction of latest ICTs. But restructuring obsolete communications systems does not mean automating the outdated system. Change

brings the opportunity to discover concrete needs for ICT application and to shift from supply to demand. There is scope for halfway houses such as not for profit portals and servers in wealthy net economies. A greater challenge is to engage the citizens in using ICT to their advantage and cities are the most promising institutions to achieve this. There may be a problem with small towns because they may not have the financial muscle to set change into motion. They may form groups and share a budget for the introduction of ICTs. 'Smart' information systems need marketing especially to those which are most remote. Families could be instrumental in spreading their experience with ICT which local administrations could supply for them pro-actively.

### *7.4 Role of Political Leaders in ICT Application for Civil Society*

**Andre Santini** whose city is a partner in the cybervote project continues to support e-voting despite possibilities of fraud and other irregularities. However, no system can rule out irragularities completely and current voting by correspondence is prawn to abuse as well. It was considered that the convenience for both the municipality and the voters would outflank the potential inconveniences. Some form of electronic voting is already in place in the European Parliament where MEPs can use buzzers. The use of ICT, such as a websites, is improving the links with these large constituencies and provides also a window on the whole world. **Erika Mann** has designed her own website and frequently updates factual information on her as an MEP and her political activities while excluding her private life.

### *7.5 EU Framework for e-Democracy*

**Walter Schwarzenbrunner** gave an overview of EU policies and action programmes for the future of electronic democracy. It is a matter of developing opportunities while dealing with challenges. E-democracy should provide better access to information, increase transparency and direct communication between citizens and politicians, use electronic voting and introduce technologies to foster other forms of direct citizen participation. The main challenge is the digital divide, both within societies and at the global scale.

Certain conditions have to be fulfilled to broaden active participation in the information society. A cheaper, faster and secure Internet should be more easily accessible. Smart cards should assist researchers, students and other interested parties in gaining high speed access to the Internet. It also means to invest in people's skills with the help of ICT and to draw young people into the digital age. The EU aims to stimulate Internet use for e-commerce, e-government, health on-line, and intelligent transport systems. It also intends to produce more European content and evolve into an e-Commission. This presupposes a culture based on service, improved access to information for EU citizens and provision of other services on the web. Interactive policy consultation for EU policies should also take place on the Internet and pilot projects have been started. Structural funds, the IST programme and other educational programmes, together with monitoring and benchmarking are EU tools to develop e-democracy.

56% of EU municipalities have a website but more cities should be encouraged to create sites on the Internet and to extend their interactive facilities, now at 70% of existing sites. The on-line survey shows also that this infrastructure is used most to contact elected representatives (44%). Discussion fora (14%) and opinion polling (8%) have great development potential, together with political discussions and opinion building. ICT can bring about a genuine link between elements of direct and representative democracy.

### *7.6 e-Democracy Applications in Cities*

**Giovanni Salizzoni** (Bologna Italy), **Madeliene Long** (Lewisham UK), **Carl Cederschiold** (Stockholm Sweden), and **Wilfried Lemke** (Bremen Germany) presented e-democracy in action. They share the principles of e-democracy laid down by the EU and are implementing a number of objectives with or without EU funding.

Most among them, as many other cities around the world, have been setting up a citizen information system with free or affordable access at home and in public places. The municipal websites provide information and services for citizens, communities and non profit making bodies and attract an increasing number of postings. In Bologna, 17 million people use the virtual integrated front office, 'Iperbote'. Digital pilot applications have been put into place for e-commerce and communication. E-voting will have to rely on a workable and safe system. Communications between the local authority and citizens can also take place by email using automatic message routing systems. Newsgroups and local interest groups have access to such interactive networks which provide extensive frontline and customer care services. The on-line infrastructure is used for other types of citizen participation. In many cities, users get free technical information and training. Similarly, political parties and candidates get free webspace and newsgroup management during election campaigns.

Besides information on administrative matters (legislation, rules, decisions, etc) glossaries, guidelines and summaries of workflow are also made available to simplify bureaucracy. This new tool is clearly producing new functions inside the municipality as well as new relations with its citizens. One important matter is to shape e-democracy to bring the population close to societal problems and to help change their mind set. Low voting turnout is a problem in all these cities even when public places have high Internet provision. Clearly, available and/or free ICT infrastructure alone is not enough to revive the democratic process.

Lewisham is running three projects: 'your voice your say' connecting the municipality, businesses and citizens. The Young citizens' ICT project lends an ear to school children. The EU funded dialogue project has provided 70 citizens with PCs, Internet access, training and technical support to take part in live discussions on local policies as input to policy making. Stockholm has the advantage of having built a black fibre infrastructure reaching every part of the city and accessible to any user public, private or

social. This constitutes a powerful communications network. It enables the municipality to offer freedom of choice for many city services and to deal exhaustively with cases regardless of their importance. It also helps to build strong internal cohesion and well trained human resources, but such a centrally controlled system could also lead to autocratic use and favour participation of the most vocal groups. Advanced e-democracy requires knowledgeable people but policy debate should take preference over pedagogical activities by the municipality to remind people of their voting tasks. Stockholm has used e-voting, for example, for an underground car park, although the political decision went against the outcome of the vote. This raises the issue of accountability and the obligation to stick to a priori rules of the game.

Bremen is weighing up the chances and risks of the information society through participation in a number of city network projects with EU support. Bremen is well endowed with ICT as Germany is subsidising the Internet in schools (100% penetration) and training children to use it. Similarly, public administrations are using e-democracy almost for all services, despite the problems - akin to e-commerce - of electronic signature and other security aspects. While recognising the advantages of pooling experiences, obtaining feedback and direct participation, ICT application cannot replace all face to face contact. Nevertheless, most cities keep the information society momentum going and are planning further improvements and refinements for their e-democratisation in progress.

### *7.7 E-democracy in the Developing World*

**Jaime Beunahora** (Bogota, Colombia) expressed preoccupations about the introduction of e-democracy in cities of the developing world. Although Colombia does not share the undemocratic history of other parts of Latin America, the North South divide is real and application of Western technology is limited by lack of resources. The definition of democracy varies from city to region, country, continent and the world. A straight transfer of ICT is multiplying difficulties in the developing world and increases the knowledge divide within and between countries and cities. There is also an issue of time resource, the lost time in cumbersome commuting and the conditions to get it back are more pressing than hightech ICT networks. After 10 years of globalisation, ICT has made step by step inroads in the Western world. In Latin America, industry cannot survive in competition with advanced USA technology. There seems little chance to develop indigenous communications industries and applications more suitable for local circumstances. Fixed telephony and the growing mobile telecommunication market is entirely controlled by the USA. The objectors at WTO and G8 gatherings are only denouncing a caricature as opposed to the grim reality of the conditions in the third world.

However, the role of (tele-) communications is vital for economic development, as information should precede rational decisions. Thus Bogota should install Internet infrastructure providing access for businesses, public offices and schools. But the everyday reality is that only 5% in Bogota have access to drinking water. In the light of

the gigantic health, education, housing, public transport, etc. deficit of this city, it is a sheer political impossibility to shift resources to hightech ICT for the few who cannot solve these fundamental problems of survival. Democratic principles guaranteeing individual freedom have led to an explosion of private car ownership which jeopardises public transport. In these circumstances, even traditional voting presents problems and e-voting is out of the question. What matters more to people and the administration in Bogota than which technology to use for voting is to obtain the exact reflection of the voters unlike in Venezuela, Chile, Peru and elsewhere in the neighbouring countries about, for example, their wishes concerning public transport. There is no chance for Bogota to obtain the necessary means to carry out an experiment which would return at least some of the public space in the city to pedestrians. Development remains a privilege of minorities and poor cities have no chance to implement even modest ideas of their own.

### *7.8 e-Democracy from the User Point of View*

His work with the World Bank brings **Stephen Denning** in contact with the users' perception of e-democracy. He expressed a real worry about information overexposure [Denning dia 2]. Even if all current government services are provided electronically, it is not simply a matter of filling the Internet with information and unstructured data. A study showed that they are of little real value to citizens. Other measures are necessary to close the knowledge divide and to take care of the laggards. Lowering telephone charges, public access to the web in post offices and libraries, computers in schools, adult education and improvement of the language barriers (cultural as well as technical) should bring the benefits of e-democracy closer to all people. Even if such catching up strategies were to be implemented, there would still be a need to regulate the over-achievers, such as unregulated dot.com companies, small aggressive organisations which make inroads into established large firms and grow indiscriminately such as Amazon. They are creating instability and fictitious capital but big firms which are surviving without innovation and openness, such as microsoft, can also stifle competition .

Not only is the ICT revolution reshaping the world economy, it has a profound impact on government which needs to transform itself. It needs to develop a new kind of responsiveness when unit costs of computing, communications and transactions are approaching zero and cope proactively with other large scale technological changes. Governments need to rethink fundamentally every process and structure. Most importantly, a new vision needs to be developed and communicated effectively as the future cannot be an extrapolation of the present. A survey shows that the effectiveness of persuasion methods range from zero for charts with boxes and arrows and rational arguments. Dialogue is not practical for mass communication and only story telling has a high impact. While analytical thinking is inherently confrontational, story telling is collaborative. Listeners do not feel threatened and become part of the story. In a world where nobody wins or loses, where there is no sense of attacking and defending and no

gaining or losing ground, people can feel involved and be ignited into action. This should become a fundamental principle in the running of knowledge era organisations.

## 8. e-Business, e-Commerce, m-Commerce, t-Commerce

At earlier Global Fora, e-business was only just emerging. Since then, it has grown and diversified exponentially, not only in the USA but also in Europe and Japan and is growing in other regions too. However, it has not become a global tool yet for all sorts of reasons. They include technological and juridical limitations, such as electronic signature and encryption. But e-commerce also encounters cultural barriers related to consumer taste and customs, besides language and global banking.

### *8.1 EU Competition Policy for the (Tele-) Communications Industry*

**Jean-Francois Pons** outlined the competence of the European Commission in competition matters. While certain competition issues are regulated at national level, there is a need for a Europeanwide arbiter to deal with conflicts between member states and to ensure a general level playing field approved by individual countries. The European Commission has three basic instruments to deal with competition:

- it can initiate new actions;
- it is managing EU competition policy, and
- it is monitoring and issuing sanctions against infractions.

It is thus an autonomous authority in this field under constitutional guidance. Article 81 of the Treaty of Amsterdam deals with cartel pricing, other agreements between companies which infringe competition, and possible exceptions. Article 82 deals with the abuse of dominant positions. This applies also to ICT after deregulation to incumbents and new entrants equally, including outsiders such as Microsoft. It covers competition for e-business, e-commerce, m-commerce and t-commerce. The Directive on concentration in the (global) economy deals with their impacts on the Single European Market. The EU is consulted by all major international and global bodies to ensure balanced competition.

In terms of (tele-) communication applications, the EU takes a pro-active position, because there is a policy consensus between all EU member states on liberalisation. This is reflected also in the information society directive. General competition rules apply also to liberalised telecommunications. Differences persist though between member states on the level of prices, access rates, redistribution taxes, etc. The Commission intervened and initiated measures to obtain lower prices.

A survey of rented lines showed that high rent was due to too little capacity. A roaming survey initiated by the European Parliament discovered price abuse. Conversely, telecommunications companies in a dominant position were able to offer low prices in schools by using cross subsidies and thus unfair competition.

A decision was taken on concentration between operators and telecommunications companies with links to the Internet or pay TV. Conditions were attached to overconcentration between those who already dominated the market such as BT, AT&T, MCI Worldcom, Sprint and others. They were forced to sell some of their asset when acquiring others in the ICT field. The EU is cooperating with US competition authorities and agrees on many decisions and analyses concerning mergers and acquisitions in telecommunication and multimedia industries. This includes Microsoft, Vivendi Seagram BskyB.

As a result of increased but fair competition there are over 500 (tele-) communications operators in the EU, as opposed to 15 in 1995. They are introducing change in the economy and are creating job. Thus regulations increase both competition and competitiveness.

Technological developments are driving convergence in the (tele-) communications market. Better use of satellites has boosted broadband access for cable and digital TV. With network convergence actors tend to switch markets, using their strength in one sector for other sectors. This does not prevent bottlenecks though nor monopoly prices, as long as vertical integration persists.

The Lisbon summit considered that the evolution of the mobile telephony market is good. However, Internet access remains poor as compared to the USA and will remain so until the local loop is liberalised and unbundled. Not all markets or actors in the (tele-) communications industry are global though. Where TV and audio-visual are national there is no dominant position in the Internet markets. Global competition cannot take place without the liberalisation of national markets. Meanwhile these national markets strengthen the EU actors instead, for example in the field of pay TV and terrestrial channels, which are dominated in by BskyB in the UK and Kirsel in Germany.

(Tele-) communications should observe general competition regulation. Special legislation was used in the case of overdominant positions when the first and second operators controlled more than 25%. A link needs to be established between the two opposing approaches to competition regulation. Voluntary information on mergers in the B2B and Internet markets constitutes useful background but is new for EU competition policy. This may not amount to the necessary efficiency and transparency to prevent cartelisation and exclusion of minorities. Clear rules on production, wholesale and purchase are required.

The information society presents an economic, social and citizen-related challenge in Europe. The role of competition policy is to ensure that no dominant actor is blocking other competitors nor consumer choice. Thus the European Commission has to remain vigilant.

The American position was reiterated by **Olivier Griffith** (US ambassador to France). He enumerated eight points, many of which were discussed in more detail by the FCC presentations. From a political point of view, he acknowledged that issues such as

transparency as regards taxation, the legal environment and security had to be resolved by the international community before e-commerce could become global. VAT presents a particular point of conflict where opinions differ between those who want a single entry point and those who want to harmonise VAT globally. Business dialogue and pressure groups may influence the situation, but a solution has to be negotiated internationally by institutions such as the UN, G8, OECD and others.

### *8.2 Industry Progress in e-Commerce*

A series of experiences with e-commerce were presented by the (tele-) communications industry: **Pravin Mircandani** (Nortel Networks EMEA France), **Peter Anderberg** (Steelscreen Sweden), **Michel Del Giudice** (Comm Time Cast France), **Thierry Lepercq** (Netscapital France), **David Stephenson** (Cyber-Comm France), **Chris Verwoert** (Intergraph Netherlands), **Gregory Mateos** (Posteasy France), **Staffan Brege** (Market Strategy Sweden), , and **Kim Ambler** (Boeing USA). The number of young entrepreneurs among them with very new companies was encouraging. Many have acquired knowledge, know how and contacts in large companies or the public sector and they used that baggage to start up their own businesses. All the speakers gave the background of their companies with current achievements and future objectives. Details of the companies, their products and services and their activities can be found on their respective websites.

These companies are offering e-commerce in very different areas but they expressed common preoccupations in key areas. A main issue was security and safety and, in particular, problems and risks of electronic signature, encryption, fraud and copyright infringement. International payment may also cause difficulties, together with customer guarantees for faulty or damaged products, non arrival of goods or lack of quality of services.

All these issues lead to the role of regulation, arbitration and control. The difficulty is to establish the right degree of regulation without stifling commercial development into very unknown territory worldwide. This balance is bound to vary with cultures and type of service offered by e-commerce. It still is not clear how to establish a level playing field without strangling the dynamics and innovative capacity of firms which take risks in a new fields with many unknowns.

In theory, absolutely everything can be traded by e-commerce. Services and other immaterial goods are easier to deal with as they do not have to link up ultimately with terrestrial transportation. Wholesale and intermediary sale in specialised fields (e.g. special steel for the building industry sold by Steelscreen) can also lead to substantial cost reduction. E-commerce can by integrated in traditional commercial systems and create commercial hubs which will democratise business, as they bring comparable information into the public domain. They also simplify the production processes, diminish need for storage and reduce administration. In future, payments may have to

be split between a deposit and final payment at reception of goods to share risks between the seller and the customer.

The difficulty remains to make casual visitors of a website stay on it and bring them to purchase goods and services. Operators may achieve this by connecting consumers to personalised content which requires a combination of saleable operations and application integration (Nortel).

Financial advantages of e-commerce were a common motivator, but opportunities deriving from technological innovations were equally attractive to new and often young entrepreneurs. Taking advantage of video communication to television sets instead of PCs opened up a large amount of potential customers for e-commerce, e-learning and enterprise TV which may replace phone calls in the future. It can also reach great numbers in the developing world through satellite and dish communication which is already in place (Comm Time Cast). Establishing alternative and user friendly transaction opportunities is expected to lead to the development of value added consultancies and new tools which provide access to knowledge. Small and flexible platforms avoid the blocks encountered by large companies in terms of transmission and institutional inertia and should stand a better chance to enter niche markets.

Both the provision of financial services over the Internet and the offer of greater security in immaterial transactions have grown rapidly (Cybercomm). In both cases, speedy information is of the essence. Accessed by smart cards these services minimise payment and fraud problems. They can also take advantage of the third generation mobile telephony with Internet connection. Chat-groups may become whole cybercom consortia which share information and can act as mutual watchdogs. The weakest link for all these e-companies is the openness of the Internet which is also an asset none of them want to lose. Information on e-transactions is becoming a commodity in its own right and some companies focus on corresponding regulations as well. The latter vary, for example, for transactions within the Single European Market and warrant geographic differentiation which can be captured by GIS (Gismo Intergraph) and exploited as saleable data.

Other hybrid services are springing up in every field. The combination of mail, fax and e-mail is one example (posteasy) taking advantage of the deregulation of national postal services. This can increase third party trust because part of the transaction documentation has traditional authentication which complies with existing legislation. This service and others exploit the market for the management of information flow and the combination of information characteristics related to different modes of transportation. They can also cope with differentiated temporality of information and variable shelf lives of products and services.

E-commerce is not homogeneous and varies considerably from a marketing logistics perspective (EKI). One scenario is predicting the collapse of the e-market but this would entail the collapse of good market projects as well. Thus it is important to discover the viable areas of e-commerce in the longer term. Marketing channel strategy needs to

distinguish between business-to-business and business-to-consumer relations. E-commerce can expose inefficiencies in traditional marketing channels. However, certain traditional businesses, such as mail order companies stand a good chance to meet the e-commerce challenge. Only the analysis from a value chain perspective is able to point to the optimum relationship between marketing traditionally or over the Internet. While e-commerce present new possibilities, it also puts pressure on profit margins with its lower prices, more outsourcing and higher logistics costs due to a large number of small shippings. The most competitive model is the multi-channel concept which can harness economies of scale and scope, as well as rely on existing well functioning distribution and chain management.

The transition between traditional markets and e-commerce is also made by large companies deeply anchored in the traditional business model. They may add a new communication division to their existing manufacturing activities, especially in the case when communication is playing an important part of the product or the service in question (Boeing). Such a move also enables especially large companies to be proactive in the development of the communications field and make their mark at ITU and other international negotiations, for example for spectrum regulation.

### *Discussion*

**Kees Kuilwijk**, after animating the discussion, arrived to the conclusion that financing of e-commerce start-up companies preoccupied many participants. Notwithstanding that financing is cyclical also in ITC, especially unknown newcomers have difficulties in obtaining finance early enough and their cashflow problem can push them into bankruptcy. Some are inclined to fight this unsuitable system instead of using a positive approach and getting what they can within existing constraints. A new architecture is required for the t-economy which enables entrepreneurs to move from their own field into the (tele-) communications business without frontiers. Nevertheless, there is less dissatisfaction among start-ups in e-commerce than in other advanced technology sectors.

E-commerce raises strategic issues. For **Sylviane Toporkoff** it requires focus in a market place which is chaotic and confused. It should be kept in mind that ICT cannot function in the same way as services for hard cash. As regards network commissions, the position of start-ups is ambivalent because they often draw on other companies' finances and resources, except for trade marks in the same areas of activities. In new service areas it is possible to find niche markets. The Internet may form part of this as a documentation and information base. Both finance and knowledge is necessary for a company to succeed. It requires long term industrial investment, as well as short term financial investment.

Security was another point of discussion and how it varies geographically and functionally. Industry and service providers must be authenticated a priori. The Internet finds itself at the same level of trust as old modes of transactions and security

improvement is required for both. Its weakness comes from the fact that clients are unknown in a dematerialised world. Conversely, consumers need their own legal protection as regards their identity. Information needs to be secure for the emitter as well as the receiver. Only thus are clients ready to pay. This principle applies to all economic transactions.

Standard compliance is important and could help improve interactive communication and transactions. Regulations are linked to the free market and have to encompass the new fields of emerging markets.

## 9. Conclusion

A summary of a forum on such a wide ranging subject with so many divergent views could not do justice to the key purpose of the Global Forum which is to give participants ample opportunity to exchange ideas and to network. Thus in his conclusion **Jean-Pierre Chamoux** who has wide practical experience with (tele-) communications penetration in the developing world exposed some of his own ideas in response of the two day presentations and debates. Recalling St. Exupery's *'dessine moi l'avenir'* he proposed a series of images to synthesise the thoughts provoked by the Global Forum 2000.

The information economy requires education to work with uncertainty.The future is never guaranteed, a point proven by markets and entrepreneurs. New economic entrepreneurs rediscover how to manage risks. The conventional tools to deal with uncertainty are competition and cooperation. They are also important in real life.

Dealing with uncertainty means combining risks, a real life pursuit and trend orientation taught by academics. It is not academics but young ex-students who are the movers and shakers in ICT markets. They are able to manage risks. Time and uncertainty offers young people their chance. As optimists, they can take risks, fail and restart because they have time. Such is the creative power of youth which young entrepreneurs are vividly displaying in e-commerce.

Politicians, intellectuals and action people were all referring to the digital divide between 'haves' and 'have-nots'. Yet it occurs just as intensely within the Western world (including Japan) in terms of economic and social consequences. Edith Cresson dealt with the 'lost' part of youth, people in the heart of social fragmentation and divide. In Europe, the USA and increasingly in Japan there are social problems at the individual and collective level. All these countries make efforts to achieve economic integration and to recuperate excluded minorities. As a precondition of securing universal access to ICT and its uses it may be necessary to repair fragmentation of behaviour, language and social mores.

The North South divide persists since the 1960s despite global trade. There are a lot of opinions about the reason for this, but there is little empirical evidence about the

effectiveness of policies which attempt to repair the North South divide. This raises the question of whether Western societies are solely or mainly responsible for the North South divide, and in particular the digital divide. Looking at the Congo, Burma, China, Angola or North Africa empirically reasons for these divides may be found elsewhere. In China, for example, only 2% of the population enjoy access to digital technology. This is due to the political vision of individual freedom and amounts to an expression of a vision of an alternative society to Western society. While colonial vocation rested on war, neo-colonialism could be competition in the electronic era. Is the conclusion in a globalising world that in the West all ex-colonialists have become neo-colonialists? Or do they think that the Western system is best and therefore aim to impose the Western model on others, especially in the South and the East?

Looking at what happens in countries which have chosen self-determination and developed their own system, the fact that information does not flow is a problem of their own making. For that reason, the West cannot be held responsible for the backwardness of these countries in the field of (tele-) communications and broadcasting. Examining the history of third world problems and putting them into context shows that the digital divide is due more to the lack of democratic social structures than to markets. Monopoly power in these countries holds all instruments of communication. The proof is that any force overthrowing an existing regime is aiming to cease the state controlled television and other broadcasting media which are key to absolute control. Such analysis of the real world reflects more auto-flagellation than neo-colonialism.

For that reason, it is necessary to allocate time and effort to help civil society in at least those developing countries with the least incompatible socio-political conditions to evolve their ICT tools. It would means to assist the creation of self-development from within these societies and to trigger progress and openness.

In conclusion, **Pierre Laffitte** took an opposite stance to Beaudelaire who was willing to leave this earth without having changed it. He preferred the role model of De Gaulle who had large ambitions and worked towards them. Unfortunately, in Europe the young of today are not inclined to dream of action, perseverance and to exploit available tools to their fullest. A change of attitude is required, such as initiated by the pilot projects mentioned by Cresson, to return to the energy of the 9$^{th}$ century in Europe. At that time, there was a lot of vocation albeit without tools which enabled Europe to create the modern world all the same. The Americans are the sons of this European culture and economic dynamism. Ambitious and energetic people had emigrated to America, conquered the West and are the forebears of Californian information society. The Global Forum attempts to create a bridge between this dynamism and developments in Europe and the Far East. Too rich and dense, it leaves limited time for informal exchange but it provides opportunities to network (electronically) after the event. In future, the Global Forum attempts to attract more young entrepreneurs as they are the foundation of the new economy. The visions of young start-ups give a new style to the Global Forum opening up new perspectives. This exchange should trigger generosity

and willingness of the establishment to offer help and financial assistance to the new creative generation alongside other venture capital and business angels.

While the West cannot be held responsible for all countries in the world, it can nevertheless assist while disseminating own beliefs, including the respect of diversity. It is not a matter of lock, stock and barrel transfer of culture but of creating opportunities to share at least part of these cultures and other heritage and legacies. Face-to-face and through the web, the Global Forum helps to analyse and solve at least some of the problems which obstruct the development of an inclusive and humanistic information society.

On-going dialogue will push the frontier of knowledge and action to build a global e-society further. The next Global Forum will take place in Newcastle-upon-Tyne in 2001. More information can be obtained on the ITEMS web site nearer the time.

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