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**DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY**
**COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY**

**Working Party on the Information Economy**

**DIGITAL BROADBAND CONTENT**
**PANEL AND GOVERNMENT SESSION, 3 JUNE 2004**

**Summary and conclusions**

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**WORKING PARTY ON THE INFORMATION ECONOMY**

**DIGITAL BROADBAND CONTENT
PANEL AND GOVERNMENT SESSION, 3 JUNE 2004**

**SUMMARY AND CONCLUSIONS**

The panel was designed to analyse and discuss changing digital broadband content value chains and business models and help identify new challenges and issues facing the development and delivery of digital content. Three sectors presenting different dynamic characteristics of digital content development and delivery were presented and discussed in detail: scientific, technical and medical publishing, music, and online computer and video games [see document DSTI/ICCP/IE(2004)7, Table 1 for a list of these characteristics]. The summary and conclusions draw out the generic themes coming from the panel and afternoon government presentations. Summaries from the individual sector panel sessions are at the beginning of each section below at pages 9, 13, 17 and 22. The government session was designed to provide an initial overview of policy issues and developments in OECD countries. Short versions of the six government presentations are presented in the subsequent section.

**Broadband content: Changing value chains and business models**[1]

Rapid change and high potential. The generic themes of the panel were:

- Network convergence and rapid diffusion of high-speed broadband has shifted attention towards broadband content and applications (new demand for the digital economy) that promise new business opportunities, growth and employment. The potential for digital content growth is very high and growth is only just beginning. Technologies to assure the diffusion of content and content products are increasingly R&D-intensive (faster networks, new platforms, software-intensive products, virtual reality applications, data-base management, etc.).

- Demand for content from consumers and intermediaries exploiting the potential of multiple content delivery channels is extending and supplanting infrastructure push as a major driver.

- Disruptive technologies, and broadband in particular, are challenging established business models while creating important development opportunities in all three sectors. Mobile content and applications received particular attention and are potentially major drivers of mobile telecommunication service and content industry revenues in OECD countries.

- The relationships between content originators and final users are changing, intermediaries are being created or replaced, and attitudes to content ownership and acquisition are changing. However complete disintermediation and direct contact between content creators and content users has not so far developed to a significant extent in the three sectors.

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[1]     This summary draws on the initial contribution prepared during the meeting by the rapporteur, Mr. David Worlock, Chairman, Electronic Publishing Services Ltd.

*Early impacts.* These developments are being felt by the digital content industry in five ways:

- Users are challenging established ownership and distribution arrangements, whether through P2P networks or open access/open archive publishing conventions, or through new mass distribution and inter-community trading. Network availability and broadband applications create possibilities for new forms of expression by users ("users as content creators"). Each of the sectors is restructuring value chains and developing different business models to meet these challenges. Responses differ in the different sectors, with digitisation and digital delivery very high in scientific and technical publishing and business models developing in the brand new on-line games sector which satisfactorily deals with intellectual property and copying issues.

- New pricing models and segmentation of value chains has put pressure on the digital content industry, but the currently successful models continue to be new versions of subscription, pay per view and access charges. Positive revenue feedback cycles are generated when growing numbers of paying users foster the development and distribution of online content and services, which in turn draw more paying users.

- Challenges for the digital content industries include: development of innovative content adapted to broadband; co-operation and changing roles among value chain players (in particular between content owners, network operators, Internet service providers, hardware and consumer electronics suppliers); extending broadband access; digital piracy and the role of file-sharing; digital rights management and customer authentication; and efficient payment methods (especially for micro-payments); content standards (*e.g.* digital object identifier and metadata standards in scientific publishing) and interoperability.

- Major concerns are the role of intellectual property in protecting ownership in both products and services, the future development of copyright in a digital world, enforcing these rights, defining fair use and the boundaries of legitimate use, and the interaction between competition law and copyright. There are important issues in providing content for new platforms; licensing negotiations can be lengthy and complicated due to differing legal regimes across platforms and countries.

- Compatibility and interoperability issues, oligopolistic content markets with a strong role of publishers, exclusive access to content or networks (network access gatekeepers) that could slow deployment of broadband applications and content, are all issues meriting further attention.

*Challenges.* In each of the sectors it was clear that existing and new commercial players can overcome perceived difficulties and migrate to being network content providers. Some sectors have successfully launched new business models (online games) while others are still experimenting with new approaches. In all cases the required levels of innovation are high. In particular, participants noted that:

- Access points, mobility, portability and delivery media are all changing.

- There are no readily established business models to simply pick up and use. Old business models do not automatically apply to emerging markets. On the other hand, investment in digital content and digital delivery has to be sustained by margins derived from traditional market models until successful new models emerge, are tested by commercial operators and accepted by users.

- Productivity gains are vital to reduce prices for users, but in many cases these gains require structural change in content creation and delivery industries. On the supply side the new generations of ICTs are leading to changes in the market structure of telecommunications,

information services and content firms. Essentially, all the players must reinvent themselves. Network operators need to generate revenue to support investment in next-generation networks and replace loss of traditional business. For intermediaries, existing players are reinventing themselves, some are superseded and new ones emerge.

- New content value chains are creating new sets of activities which different or new players in the value chain can assume: content production, marketing of publishing offers, rights acquisition / management, packaging and distributing content, content protection, management of emerging publishing services, sale of advertisement space, profiling users, billing management, payment management, customer relation management, security/control, access management and other activities. Single suppliers or providers manage few of these multiple roles; they are often joint or separate activities of content providers, network operators, intermediaries, etc. There are new roles for content providers and content aggregators, network operators and intermediaries (including revenue sharing among them), which involve a high degree of co-ordination as well as competition along value chains, all of which have impacts on market structures.

*Policy issues*. Broadband provides the potential to accelerate developments and capitalise on new market opportunities that have impacts on growth and employment. Government roles include:

- Public policy needs to acknowledge these changes and adjust policy and the regulatory environment to dovetail with them (adapting existing frameworks to take account of digital content development and new digital transactions and related policy issues described below).

- Recognition that the speed and structure of change has to be measured and economic consequences for networked and traditional businesses in content sectors analysed.

- Recognition of the role of governments as content creators and users, and the role of government procurement and the establishment of best practice guidelines.

- Some industries have been able to deal with the emerging challenges more rapidly and there are many lessons to be learnt through horizontal analysis and international dialogue.

Many of these issues were also covered in the government presentations in the afternoon session (see below).

**Issues related to digital content development and delivery identified from the government presentations and initial case study analysis**

*Innovation and technology*

- R&D and innovation in content, networks, software and hardware.

- An environment conducive to content production.

- Venture capital and other financing.

- Skills and human resources development.

*Value chain and business model issues*

- Framework conditions for creation of new business models and spread of best practices.

- Convergence issues and associated regulatory challenges across different value chains and industries (content, communications, and electronic equipment industries).

- Technology neutrality. Digital content treatment consistent across different platforms.

- Competition and co-ordination issues along value chains. New distribution and revenue sharing models (network services, content providers, intermediaries etc.).

*Infrastructure*

- Broadband policies to ensure coverage and access to infrastructure and applications.

- Technological issues related to digital content delivery – standards, interoperability (including DRM), etc.

- Technical protection issues including digital rights management and watermarking.

- Infrastructure for payment and micro-payment systems, electronic signatures, authentication.

*Business and regulatory environment*

- Adapting established regulatory frameworks to digital content value chains and business models.

- Protection of intellectual property rights: Counteracting piracy, DRM as enabler of business models, clarification of use rights along content creation and delivery value chains, digital rights clearing systems.

- Taxation issues specific to digital content – tax neutrality for digital content.

*Public / government content (public sector information) and applications*

- Government as model user in putting government content online.

- Digitising public content (meteorological data, archives, etc.) and providing access to education, cultural and public information resources. Availability, access and pricing questions.

- Public demand: Digital content in education, health, etc. Multi-device access (*e.g.* mobiles, PDA, TV, PC, consoles) to education and cultural public resources.

*OECD work is focusing on the following activities:*

- Sector analysis, benchmarking, and review of analytical and policy issues.

- Policy forum on specific issues.

- Organisation of panels, workshops and *ad hoc* activities to address specific policy issues.

**DIGITAL BROADBAND CONTENT
PANEL PRESENTATIONS AND DISCUSSIONS**

**Background**

The 16th Session of the Working Party of the Information Economy (WPIE) opened with a panel to begin work on broadband content (see www.oecd.org/sti/information-economy and Annex 1 for the panel agenda). There were 122 participants including 107 delegates and experts, with 11 presentations from business representatives and experts in the morning panel. Presentations focussed on the development and distribution of digital content. The morning panel was followed by government presentations on policy frameworks for broadband and digital content by the United Kingdom, Japan, Norway, the United States, Korea and Italy. A one-day workshop and further activities as required are planned as follow-up.

The panel was held in the framework of the WPIE work programme on the development and delivery of digital content. Content transmitted over electronic networks comes from traditional publishing and entertainment industries and from a rapidly widening range of business, professional, education, and government and health activities, dynamically transforming industries that provide digital content or have potential to provide it. The rapid development of broadband networks drives content development and skill development, which in turn drive infrastructure expansion.[2] Broadband content applications and services are expected to provide new impetus for the digital economy, supplanting the infrastructure push that has provided widespread network access. They are also driving development of IT and consumer electronics hardware to provide improved access and better use of digital content in business, governments, homes and other sectors. These developments are expected have significant impacts on growth and employment.

The WPIE is undertaking stocktaking studies of sectors where digital content is transforming value chains and business models. The first studies cover scientific and technical publishing, music, and online computer games, and a fourth focussing on mobile content has been added following strong interest from Delegations. The work focuses on: development of new business models and generation of new revenue streams; changing value chains; drivers and barriers to growth; sector transformation and changing market structures; and impacts on growth and employment. The studies are designed to further identify analytical, policy and measurement issues, contribute to the OECD workshop on digital broadband content, and prepare the ground for more in-depth analysis of horizontal challenges to broadband content development and applications.

These studies are being developed in parallel to ongoing work on digital delivery in sectors including business services, healthcare, distribution services, financial services and others that focus on business information and applications.

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2       Lorentzen, E., "Norway's strategy for electronic content", describes the virtuous circle of development of infrastructure, leading to increased supply of content and services, leading to improved skills, leading in turn to improved infrastructures.

**Introduction**

*Mr. Richard Simpson*, Industry Canada and WPIE Chair, introduced the panel, explaining that it derives from OECD work on broadband over the last two years, particularly in the ICCP Committee, the WPIE and the TISP. Convergence of networks and increased diffusion of high-speed broadband has led to shifting attention towards rapidly developing broadband content and applications (new demand pull for the digital economy) which promise new business opportunities and impact on growth and employment.

The OECD Recommendation of the Council on Broadband Development [C(2003)259], issued 12 February 2004, resulted from this work: it emphasises the need for attention to both the supply and demand sides of broadband and digital content (see Annex 2 for the Recommendation). This recognises that policy attention has shifted from access to use of broadband networks. On the supply side, the Recommendation calls for government action to encourage the availability and diffusion of broadband services. On the demand side, it encourages the development and delivery of digital content to exploit the capabilities of broadband infrastructure and services. It also calls for regulatory frameworks that balance the interests of suppliers and users, in areas such as the protection of intellectual property rights, and digital rights management without disadvantaging innovative e-business models.

The WPIE organised the panel to analyse the development and use of broadband content, a key factor in encouraging demand for broadband. The panel set the stage for this new OECD project with business presentations from consultancies, telecommunication and Internet service providers (fixed and mobile), and emerging or established players. These players identified the key promises and challenges of the advent of digital content development and distribution. In the first session, a horizontal view of the rise of digital content and associated value chain developments was presented. Through presentations from scientific and technical publishing, music, and online computer and video games, the second session's aim was to identify new business opportunities, changing business models and value chains associated with the advent of broadband. Business speakers also identified obstacles that hamper the full exploitation of broadband potential. The afternoon presentations from governments complemented the business perspectives through identifying the resulting policy challenges and presenting existing or planned policy actions in OECD countries. The afternoon session also worked to inform the Secretariat on possible policy priority areas that should be fleshed out in the sector studies and more horizontal policy work.

The Chair expressed special thanks to delegations for their support of this work and to BIAC for helping to organise panel representatives from the private sector.

# SUMMARY OF THE PANEL SESSIONS

## Session 1: Overview of digital content and value chain developments

*Summary*

- *Recent developments:* Rapid high-speed broadband development and innovative use, convergence in the capacities and potential use of fixed and mobile platforms, and ongoing experimentation with business models for content ownership, delivery, and use. Central concepts in relation to content are mobility and sharing. Non-commercial peer-to-peer networks have experienced fast take-up indicating that there is demand for new commercial content delivery services and business models based on easy / deep access and subscription models. The music industry is experimenting with first commercial online music efforts whilst the online games industry has already developed successful business models.

- *Issues identified:* Relations between network service providers (fixed and mobile), technology suppliers (*e.g.* handsets) and content providers are changing and complex new market structures and business relationships are evolving. Often the challenge is to move from a model based on advertising to a model based on paid subscriptions / paid content. Positive revenue feedback cycles are generated when growing subscriber numbers foster the development of online content and services, which in turn draw more subscribers.

- *Outlook and issues:* Continued turbulence, but the first workable business models are in operation and generate substantial revenues. Broadband video services and "Triple-Play" (voice, broadband and standard or on-demand audiovisual services) from ISPs will provide further growth. Industry players are continuing to experiment and new business partnerships result.

*Panel presentations*

*Mr. Laurent Michaud*, Head, Video Game & Interactive Leisure Division, IDATE, presented a "Stocktaking and outlook on the growth of digital broadband content". Overall there has been fast diffusion of broadband access (more than 100 million broadband subscribers). High-speed Internet is predicted to continue strong growth, with service speeds increasing rapidly while prices are decreasing. For example, from 2002 to 2003, France, Germany, Italy, the Netherlands, Spain, Sweden and the United Kingdom more than doubled the number of broadband subscribers.

Access to broadband is now leading to innovative usages of broadband content and stimulating the creation of new technologies in consumer electronics (*e.g.* portable audio and video players) and media carrier technology. Peer-to-peer (P2P) file sharing is an element encouraging growth in broadband subscriptions, as it enables users to share content with one another and transfer it between multiple devices. There are essentially two new ways of accessing content over broadband: *streaming* (pay per play) which is on demand and live listening, and *downloading* (pay per download, rental or full sale) in which case the listener can play the content multiple times. Central concepts are mobility and sharing. Thus file sharing is likely to continue to be at the centre-stage, suggesting that there is solid demand for new commercial content delivery services and business models based on easy access and payment models.

*Music:* The music industry has had a difficult experience with file sharing. But Web music industry models are now developing (10 significant offers which market online music). There were around 450 000 registered online music users by the end of 2003 with 275 000 tracks available and a monthly average 300 000 downloads. The number of available tracks is growing, albeit at a slow pace due to difficult licensing negotiations. Success of these offers relies on a well-marketed bundle of content (repertoire), services (platform) and player devices. To the user, compatibility is a key issue.

*Online computer and video games:* Massive multiplayer video games have shown effective development of subscription-based business models. In contrast to the music industry, the online computer and video game industry has started to find effective business models in which the leading publishers are involved. The leading example for successful online computer ventures is Korea. Still, game service providers are often in the business of being free online matchmakers between game players subscribing to services, working to maximise traffic for advertising rather than selling subscriptions. Often the challenge is to move from a free model based on advertisements to a paying model based on subscriptions (based on services rather than a one-off purchase of a product). Penetration of the mass market and moving to profitable business models remains a key challenge to online games businesses.

*Broadband video:* Broadband video services will provide a further source for growth as commercial initiatives are launched. After two years of experimentation, there are 8 offers in North America, 22 in Europe, and 11 in Asia. These are based either on immediate consumption (video streaming) or delayed viewing (download/video on demand) and different business models (free, subscription, pay per view), with selected examples shown in Figure 1.

**Figure 1. Broadband video services**

| Video service | Business model | Provider |
|---|---|---|
| Stand alone TV channel | Free, subscription | LCI Live |
| TV bouquet | Free, pay per channel, subscription | TV Noosnet |
| Video on demand | Pay per title | Movielink |
| SVOD | Subscription | RealOneSuperPass |

*Source:* IDATE.

Audiovisual services delivery (video-on-demand) promises to be one of the key new growth areas. This holds especially true in the context of network or telecommunication service providers increasingly moving to "Triple-Play" - offering voice, broadband and standard or on-demand audiovisual services (*e.g.* Free in France).

*Mr. Dennis Weller*, Chief Economist, Verizon, described the "Evolution of the value chain: Adaptation for digital delivery in a broadband world". Network service providers are examining options to proceed with investment in and development of next generation telecommunications technologies and services. On the demand side adoption of ICTs leads to changes in structure among business users necessitating new internal organisation, skills and bringing about new patterns of outsourcing. On the supply side the new generations of ICTs lead to changes in market structure of telecommunications and information firms. Essentially, all the players must reinvent themselves (new roles, new business models). It is very risky to simply try to transfer old business models to emerging markets.

In this changing environment *network operators* wonder how to generate revenue to support investment in next-generation networks and how to replace loss of traditional business (essentially fixed-line voice traffic). Another essential question is what applications/content can put greater speeds (100 BPS

rather 3 MBPS) to use. *Content providers* realise that their old distribution methods are fading and that there is a need to find new business models. When it comes to intermediaries, existing players reinvent themselves and new ones emerge.

Network service providers' roles have adapted from hauling their own information on the Web to hauling users to content portals. This has led to growth in the relationships between companies, complex interactions among firms in supply chains, and contracts that are multifaceted and tailored to differing and rapidly evolving individual arrangements. The new value chain consists of the following basic roles which different players in the value chain can assume: rights acquisition / management, content protection, content production, sale of advertisement space, packaging and distributing content, marketing of publishing offer, management of emerging publishing services, profiling users, billing management, payment management, customer relationship management, security/control offer, access management, and other activities. Few of these roles are managed by a single player (joint activity of content provider, network operators, intermediaries, etc.).

Firms such as AOL have increasingly entered into collaborative relationships with, for example, Amazon for e-commerce applications, Microsoft for Web-browsing applications, CNN for news services, Google for search services, or partnerships for content and advertising. British Telecom (BT) and Yahoo have teamed up with leading game publishers in the area of online games. The customer receives ADSL connection from BT that is compatible with PS2 or Xbox consoles and Sony and Microsoft supply games. Yahoo UK supplies services and Internet content to BT Yahoo! Broadband subscribers. Access is provided to multiplayer online games, voice communication, and new games can be downloaded. In general, high risks with new business models make tight co-ordination between different players necessary.

Overall, information markets are now characterised by rapid technological change that requires resource investments and adaptation of company structures. There is a high degree of co-ordination required up- and downstream that involves highly specific contracts with new parties to share the information. It is thus very hard to predict market structures and defining rules in advance is difficult.

*Mr. Seishi Tsukada*, President, NTT DoCoMo Europe, presented "DoCoMo's 3G services and content in Japan". Network technology in Japan changes about every ten years, which has led to a rapid development of the mobile market and related mobile content applications. FOMA is the third generation of mobile technology and represents an effort to provide a seamless evolution of technological applications. The number of FOMA subscribers exceeded 3 million on 30 March 2004, and the subscriber base was expected to reach 10.6 million by March 2005.

There are three factors for success of 3G: the network, handsets and new applications and content services. In terms of the networks, Japanese mobile operators have continually improved indoor and outdoor coverage. New handsets offer superior basic functions (large-volume content, video mail, 2 MB pixel camera, fingerprint sensor, 2 MB file sizes) while keeping size, weight and standby battery hours comparable to earlier-generation phones. Users are encouraged to use videophone (animated characters to represent the sender's face during videophone calls, etc.). Opportunities also arise through the development of businesses linked with brick-and-mortar services (maps on phone, restaurant information, airport check-in, payment services). Other content services focus particularly on online games, ring-tones, downloadable music and other content that can be saved to the phone's address book.

Positive revenue feedback cycles are generated when growing subscriber numbers foster the development of online services, which in turn draw more subscribers. Business models are usually based on operators that, in conjunction with content providers, act as intermediaries to provide network services, user authentication and payment collection services. The operators and content providers share user fees.

*Discussion*

The discussion focused on the difference between the types of content that could be provided over mobile Internet and broadband. As wireless networks develop higher speeds, limitations and differences between mobile and broadband Internet are diminishing. A wide variety of new business models for content delivery are being experimented with, and optimum arrangements are not yet defined. There is little difference between types of content that could be provided over each medium, and there is considerable convergence between wireless and fixed technologies. However there is still a need for adaptation of the content to the different display sizes and functionalities of smaller mobile devices.

Delegates asked about the payment mechanisms for iMode (NTT DoCoMo's successful earlier 3G mobile service), which are either monthly subscriptions paid through an operator to content providers with commissions paid back to the operator, or independent deals directly between sites and users. Given the established role between network operators and customers (monthly bill), small content transactions are easily paid for in the mobile environment. But secure online payments, especially for micro-payments for content applications, remains a challenge in most OECD countries.

It was also concluded that one policy role is to set technology neutral framework conditions for infrastructure development that will efficiently carry digital content and which will in turn contribute to further infrastructure development (see the OECD *Recommendation of the Council on Broadband Development*, 2004, Annex 2).

**Session 2: Transforming value chains, changing business models and obstacles**

**A.        Scientific, technical and medical publishing**

*Summary*

- *Recent developments:* Electronic publishing has been a challenge to traditional publishing for almost 30 years. Today the majority of scientific and technical information is already delivered electronically leading to adapting roles and interactions between authors, publishers, intermediaries (libraries, sales entities) and end-users.

- *Issues identified:* Continued digitisation and digital delivery, the absence of complete disintermediation, the role of large and small publishers, high transaction costs for small players in the more complex value net, development of open access and open archive models and a continued if not increased role for libraries. Pricing and payment models are evolving and continue to present challenges to the economic organisation of the sector. There is an important role in establishing and implementing digital content standards (*e.g.* digital object identifier and metadata standards in scientific publishing).

- *Outlook and issues:* Tensions between the evolving roles of traditional players and the impact of open access and open archives models until new models for access to knowledge can be developed. Removal of remaining barriers to adoption of on-line solutions and new value network approaches to information access and distribution and further experimentation with and adoption of complex unbundling and bundling strategies.

*Panel presentations*

   *Mr. David Worlock*, Chairman, Electronic Publishing Services Ltd., spoke about the "Changing business models in the scientific, technical and medical (STM) publishing market".  The market size of STM publishing in 2002 was roughly USD 7 billion (see Figure 2), mainly from journals, databases and books. STM information providers compete strongly in certain areas, but often enjoy dominant positions in lucrative niches. Combined, the four leaders (Elsevier, WK Health, Thomson SHC, New Springer) represent 49% of the market.

**Figure 2. Revenue by content segments for scientific, technical and medical publishing**

**Revenue by Content Segment, 2002**
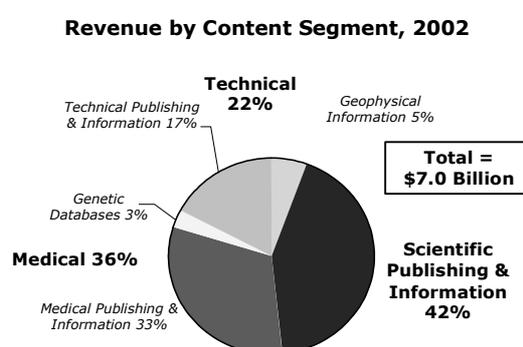


*Source:* EPS Market Monitor, November 2003.

The majority of STM content is used by the scientific research community, but firms, the government, and healthcare practitioners are a large consumer segment (40% in the case of scientific and technical information and 50% in the case of medical information). The STM customer base is segmented into two main groups: those reporting on developments stemming from scientific, technical and medical work, and those looking for information for their own scientific, technical and medical research.

Digital technologies appeared first in STM publishing in 1976 and they have brought constant change to the publishing industry; essentially in the relationship between users and content providers and corresponding business models. Large companies, which comprise about half the STM publishing market, are evolving sophisticated navigation tools for finding and visualising the relationships between information items. Today the majority of scientific and technical information is delivered electronically (in 2002: 61 % of all scientific and technical information was delivered electronically and 42% in the case of medical information) and the share of publications delivered electronically is growing rapidly.

Open archive and open access concepts that are not under control of standard market players are currently under experiment. Open archives (institutional repositories: interoperable, way of storing and searching content, not necessarily free to end-user) were contrasted with open access (author pays: content is free to the end-user, alternative publishing models, organised author self-publishing and peer review).

An open archive model, which provides access to the data generated by research, is evolving. Today open archives are early adopter institutions / disciplines that organise access to their intellectual assets for internal and external user communities. Barriers to progress for open archives include:

- Can institutions / academics manage a vast publishing programme? (Content tagging, editorial, updating, version control, author control)?

- Will federated search technologies work and enable cross-searching?

- Will publishers release postprints?

- Will user / author behaviour change?

The future may yield international searchable access federated open archives (by discipline) containing free and paid-for content and pre- and post- prints.

An open access model, based on authors paying to publish information distributed to readers free of charge would undermine the model that has driven STM publishing to date. Questions discussed in the context of open access include:

- Is "author pays" economically viable?

- Will commercial publishers be forced to follow open access pioneers, how will commercial STM publishers be affected, and what are they doing to counter the threat?

- Is there room for hybrid models?

Returning to established commercial STM players, there is an ongoing battle for content navigation which is mainly taking place between Science Direct (Reed Elsevier) with Scopus, Scirus Science Direct for navigation and searching abstracts and gathering intelligence, and Thomson with ISI Web of Knowledge (Science) ISI Citation Indexes, Biosis Contracts with IEEE. Issues of digital object identifier

standards are important in this context. The presentation concluded by asking the question whether and how scholarly standards can be maintained in a period of rapid change?

*Mr. Piero Attanasio*, International Projects Director, *Associazione Italiana Editori* (Italian Publishing Association, AIE), described the complexities of "The STM publishing value network". The Internet is changing ways of packaging and conveying information. This is most evident in new approaches towards unbundling/bundling articles in journals and in the chain of intermediaries between authors and readers. Traditionally users need to access individual articles. In the offline world, however, customers are usually facing printed journal bundles accessible via a yearly subscription. In the online environment, the user may face online bundles that consist of buying a single license for many journals. Instead of going toward un-bundling, the market privileges a kind of "meta-bundling". The traditional publishing value chain is depicted in Figure 3.

**Figure 3. Traditional publishing value chain**



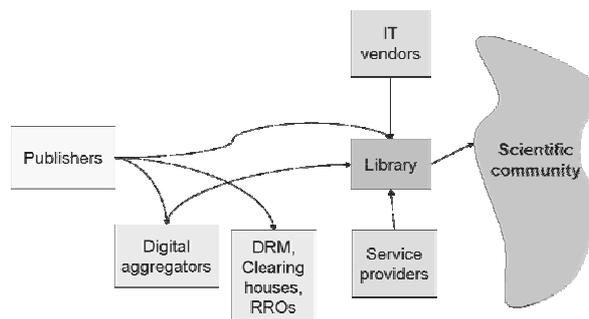*Source: Associazione Italiana Editori.*

Some experts predicted that the Internet would eliminate intermediaries, for example distributor and library are replaced by the Internet and catalogue services replaced by search engines. However, without these intermediaries the links between author and final users has proven to be too thin (Figure 4), and there is empirical evidence that library functions have increased in importance, and the role of intermediaries has increased rather than decreased.

**Figure 4. Publishing value chain without intermediaries**



*Source: Associazione Italiana Editori.*

Most importantly, the value chain is now seen as a value network incorporating a broad range of participants and challenges (see Figure 5). Libraries now need sophisticated technological systems from IT vendors and other service providers to access and offer value added services (search and retrieval, resolution, etc.). To have access to content there is also a need for negotiating intellectual property rights in an appropriate way. Digital aggregators are new players that help libraries to reach content produced by small players. Due to the multitude of players publishers can use different strategies (*i.e.* directly to libraries or to digital aggregators) to reach users.

**Figure 5. New publishing value network**



*Source: Associazione Italiana Editori.*

In the case of Italy, most STM publishers are small and medium-sized enterprises (SMEs), which have great difficulties with current market developments, with high transaction costs in new complex value nets. Standards developed for metadata for content (and IP rights) and identification of content can be tools to reduce such costs and support SMEs. Digital Object Identifier (DOI) standards deal with these two issues, and standard bodies have an important role in the development of the new publishing value net. According to Mr. Atanasio, there is no need for standards that establish rules on how to license IP rights.

*Discussion*

The discussion focused on the specifics and sustainability of *open access* and *open archive* approaches. Delegates discussed control over publishing and the changing role of libraries as a result of digitisation. In open access models, the author pays to be published. In this sense, the journal functions as a brand, lending its endorsement to articles it chooses to include. Open access models do show sustainability, although a particular journal may not have enough submissions to maintain economic viability. Quality of publications in constellations lacking proper peer review is a concern that was discussed. Libraries are changing and becoming specialised networks, although the traditional function of the "large building full of books" continues. In terms of publishing control, digital technologies allow better price discrimination and segmentation to reach as broad a market as possible.

## B. Music

*Summary*

- *Recent developments:* Broadband presents opportunities and threats for rapid and widespread commercial delivery of music. Non-commercial peer-to-peer (P2P) networks that do not remunerate artists undermine the existing music business model by essentially providing access to a broad catalogue for free. This may have significant repercussions on the number of artists in music publishers' catalogues. The music industry has had difficulties working out how to use the potential of low-cost digital delivery to provide low-volume music tracks to consumers while ensuring adequate revenue streams to develop new artists and protect the intellectual property of established ones. Currently the music industry is licensing content to new online ventures on one hand, and taking legal action against unlicensed and unauthorised use of music and increasing consumer awareness concerning digital piracy. "Walled gardens" for file sharing or similar sharing arrangements may have to be considered by the music industry. Independent operators are developing new business models, but so far these are not major sources of revenue despite their potential to widen diversity and choice. The Internet may also enable popular and unknown artists to reach consumers more directly.

- *Issues identified:* The balance between on-line sales strategies and non-commercial (free) copying is still evolving. Intellectual property issues including DRM are likely to take time to resolve satisfactorily. The role of Internet service providers in providing access to peer-to-peer networks and their relationship to the content industries remains a challenge. Apart from P2P networks, challenges for online music sales are lack of standards (music format and DRM standards), difficult access to content licenses, and the absence of business models and defined legal frameworks. Moreover, conflict between copyright and competition laws may at times exist.

- *Outlook and issues.* New business models for Internet music delivery will develop but considerable experimentation is to be expected. The protection of intellectual property in an online environment is a key issue. The enforcement of these rights vis-à-vis P2P platforms and the massive user base and the role of ISPs remains a challenge. Regulatory frameworks that balance the interests of suppliers and users, in areas such as the protection of intellectual property rights, and digital rights management without disadvantaging innovative e-business models are necessary (OECD Recommendation of the Council on Broadband Development, Annex 2). The balance between owners' rights and fair use merits further consideration in the online context.

*Panel presentations*

*Mr. Barney Wragg*, Vice President, eLabs, Universal Music International (UMI), the worlds largest record company, presented UMI's approach to digital music distribution. Record companies translate artistic productions into consumer products. They invest in artists to develop and market their works. This usually necessitates large cash investments in the artist and in marketing the artist's work. The more unknown an artist is, the riskier the investment. A record company is doing extremely well if one in ten of the artists invested in is profitable. Record companies draw their revenue from recordings and fund new artists from profits from new releases and catalogue sales.

The investment / return model is based on balancing supply and demand. Piracy breaks the supply and demand model for a record company, as P2P is an infinite supply of music at zero cost. The economic model of the record company is broken if the label cannot invest in new artists, and the first artists to suffer are high risk unproven artists. Record companies do not profit from concert ticket sales or other items. Revenue streams from concerts, T-shirts and merchandising are typically owned and controlled by the artist, and thus often-proposed income substitution models are not effective.

Universal's online strategy is to license widely and create new opportunities for the consumers to "purchase" and enjoy music. This involves bringing new players into the value chain and supporting new business models. Universal also takes steps to make unlicensed and unauthorised use of music as poor an experience as possible, to use all possible anti-piracy measures and to initiate legal action against infringing companies and individuals. Record companies are looking to broadband service providers for co-operation in terms of technical platforms and anti-piracy measures.

Most new revenues and opportunities are from non-traditional online media markets. New online video-on-demand subscription services and secure tethered downloads to players via mobile phones are also appearing. There are various options for playing and paying:

*Stream*: one play of a track, with no permanent copy stored on the consumer's computer.

*Download*: track transferred to the consumer's computer and can be played any number of times for a set period or while the consumer is a subscriber. Cannot be copied, burnt to CD or transferred to a portable player.

*Burn*: track is transferred to the consumer's computer and can be copied, burnt to CD or transferred to a secure portable player.

Alternative payment options are:

*Subscription*: regular monthly payments or one-off pre-payments giving access to a set amount of content (OD2 uses a credit-based system while E-Compil is based on a set number of burns).

*A la carte:* purchase of single tracks, without subscribing or pre-paying.

Typically the entire catalogue is available in flexible formats, and licensing is liberally available to maximise distribution channels. Key conditions for licensing rights are an agreement on commercial terms, a good technology platform (sensible and easy to use DRM) and a marketing plan. Co-operation on DRM technologies and anti-piracy actions can create a valuable market place for many members.

The music industry is interested in keeping music as an art form with intrinsic value, not as a commodity product. Many companies want to drive short-term sales by making access to music free ("free music through a broadband subscription") but this will damage the artist/ music, as the value of catalogue will be destroyed. The result may be that new music will not be available and the value chain will not be able to support new members.

*Mr. Stanislas Hintzy,* Manager, OD2, spoke about "Developing a business model in Europe: Experience at the forefront". OD2 has developed a technology platform to link users and record companies using a wide range of music formats. The main competition is with P2P sites, which do not encounter the issues of format interoperability as they work almost exclusively with MP3, and do not face the burdensome negotiations of content rights.

OD2 is an online music store intermediary in a high-risk business. There are no standard formats to code music (MP3, WMA, AAC, ATRAC, Liquid, Real) or standard DRM technologies (Intertrust, WMDrm, Fairplay, OpenMagicGate, Liquid, Helix). The competition from peer-to-peer networks is very serious as these do not bother with licensing and they are free. There is no assured content as producers have exclusive rights to authorise access to their content, and licensing negotiations can be very lengthy and do not always bear fruit. There are no existing business models and no defined legal frameworks for issues such as performance/mechanical publishing, rights territoriality or free circulation of goods and

services in the EC, country of VAT (taxation), patent legal suit for downloading and DRM processes, copyright laws and territoriality. Moreover, a conflict between copyright and competition laws exists.

OD2 offers two distribution options, either full integration of distribution platforms for suppliers to operate themselves or OD2 "white label" services based on commission. "White label" is often proposed as a turnkey solution to clients who do not have the capabilities for full integration. Typically the partner firm will tend to migrate to full integration as they see business grow. OD2 could also potentially develop its own site for music distribution.

Figures 6 and 7 show the digital music value chains involved in making music available online. The array of new players involved point to digital music distribution being a new value chain, rather than just a new delivery technology. Furthermore, online sales business models require a new focus, essentially "away from the sales of products (physical CDs) through a retail store to the marketing of music and related services through online platforms".

**Figure 6. The workings of an online music platform**
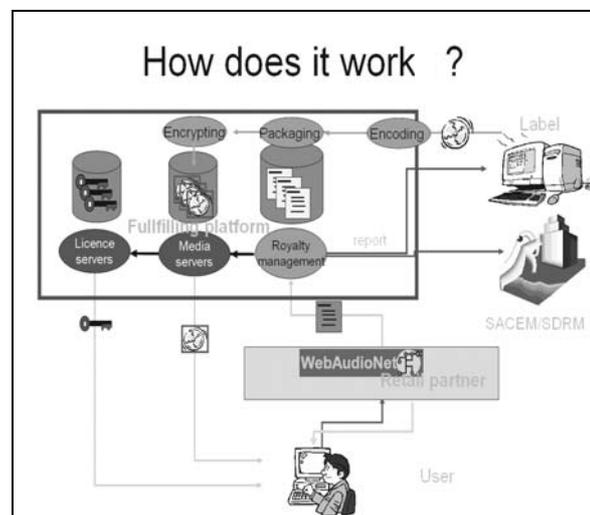


*Source*: OD2.

In current setups, digital music distribution also affects revenues streams. Online music distribution diminishes production and distribution costs, decreasing the share of revenues to the retailer and distribution, eliminating manufacturing costs of physical products and increasing the share of revenues going to the labels. Online music availability has also significantly boosted sales of portable audio and other hardware devices. The key questions are:

- How to ensure the place of digital music operators in the value chain?

- How to support the development of pure players: the Digital music service operators?

**Figure 7. Building blocks of digital distribution**
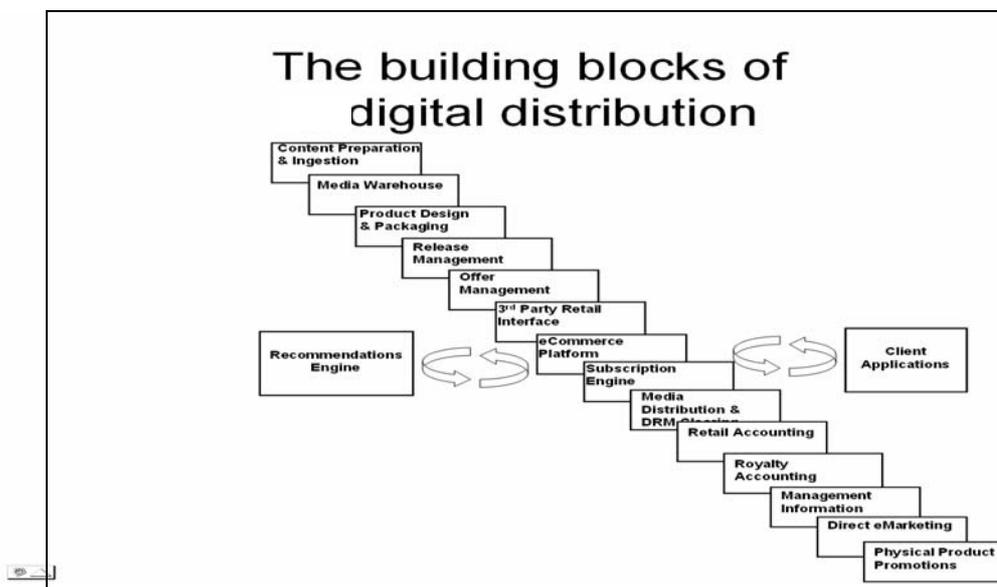


*Source*: OD2.

*Ms. Sara John*, Government Affairs Head, EMI Music, spoke about "The digital value chain and new economic models". Though a lot is said about old business models fading, in reality major revenues still come from sales of CDs, which allow the record companies to invest in new markets. Revenue streams from new business models are still quite small. Intellectual property is the key to the new value chains. Legal protection should complement consumer awareness of what companies need in order to continue investing in very high-risk new artists and product ventures. New areas of business include ring-tones, though increased sales volume is still needed. Other new economic models include co-operating with universities and other concentrations of P2P music exchange in order to create "walled gardens" for file sharing. Software companies are exploring other options, such as super-distribution, but they still need to define payments mechanisms, particularly micro-payments.

*Discussion*

The discussion focused on recent and future market dynamics in online music distribution. Until relatively recently the success of CD sales meant there was little commercial imperative for the music industry to develop an on-line strategy to exploit the Internet. The online market was not attractive to record companies because it lacked intellectual property protection and there was a fear of cannibalisation of offline sales. Internet firms were using music as a "loss leader" to drive other services.

A change of attitudes among different players in the new value chain was key to start exploiting digital delivery possibilities. New partnerships are developing combining the efforts of content providers and those in touch with on-line consumers. Content providers have a stake in protecting their intellectual property and are interested in collecting royalties through Internet sales. The Internet could give artists more channels for exposure, potentially reducing the investment risk of record companies in developing new talent. But more channels make it more expensive to reach consumers. The rise of the Internet may also enable popular and unknown artists to reach out more directly to consumers, and some artists have gained popularity over peer-to-peer networks. However, according to Universal Music self-publishing equivalents in the music industry have not yet produced any hit records.

On the technical side, interoperability continues to pose a barrier to market development. The only technology that plays on all hardware devices is MP3. But this format does not allow for digital rights management and thus does not support a workable business model, and many other heterogeneous formats are currently in use that may frustrate users. Lack of transparency and uniformity in terms of usage rules also creates problems. Finally, the existing catalogues of online music offerings are still limited compared to existing music tracks or the number of tracks available on P2P sites.

Governments have to reconsider copyright laws, their enforcement and find reasonable arrangements that do not disadvantage the end user. Policies need to underpin the changing value chains and business models in the context of long-term usage of broadband networks. In this new online environment, the greatest policy challenge facing OECD countries is to ensure that the interests of network operators, content providers, technology providers and consumers are balanced.

### C.      Online computer and video games

*Summary*

- *Recent developments***:** The on-line games industry is developing rapidly. It is an entirely new industry born with the Internet and broadband, so it does not have to deal with legacy systems and structures, and it has successfully developed ways of protecting intellectual property while building revenue. The video game industry in many OECD countries is generating higher revenues than cinema box office, it is highly R&D intensive, its applications push the limits of PC (graphic cards, processor speeds, very rapid interactivity), and games software and techniques find increasing application in non-game activities (education, government services, marketing, architectural designs, etc.). Growth drivers are broadband availability, flat-rate access, steadily increasing hardware performance, consoles going online and a growing number of global Internet users.

- *Issues identified:* The future development of the industry as it matures, and the extent to which the lessons learnt in this industry can be applied to other content sectors (video services), and to other areas (*e.g.* education, government). The main barriers to online game development and deployment are high R&D, production and running costs particularly for small producers, new skills requirements, uneven broadband penetration both within and across countries and broadband connection response times, and underdeveloped payment systems particularly for micro-payments.

- *Outlook and issues:* There has been dynamic growth and lessons for other on-line activities grappling with the challenges of using the full potential of the Internet and generating revenue, although challenges still remain in developing well-functioning revenue models. Use of games software and technology in other domains, including education and government, where high levels of interactivity and attractive digital environments are required.

*Panel presentations*

*Mr. Gaute Godager*, Game Director, Funcom, an online games developer and publisher, spoke about "Worlds within worlds: Massive online games, the future of gaming". Highlights from the computer and video games industry include: world wide games revenues surpass EUR 25 billion; Electronic Arts, the largest games publisher, is valued at EUR 10 billion, has a return on invested capital of 42% and is the world's 4th largest software company after Microsoft, Oracle, SAP; US video game revenues are higher than movie box office revenues; 100% of US college students have played video games, 70% regularly.

The online games segment is the fastest growing, with a growth rate of 50-100% annually. Everquest, the western world's largest massive online game (produced by Sony online entertainment) has 450 000 players and EUR 8-9 million revenues per month. NC Soft, the only pure online publisher, has revenues of EUR 120 million per year, and profits of more than EUR 60 million per year. The business model, based on moderately priced game purchase and monthly subscription fees, offers constant and recurrent revenue streams along with direct ownership of the customer base (purchase of the game USD 20-50, monthly subscription USD 15).

Games are meant to be fun and social. The online worlds revolve around competition and status (*e.g.* gathering the best possible equipment and status, building positive relations, creating stories and narratives). The average age of game players is 27 and 85% males, 15% females with 3 million characters on 750 player accounts and long average playing times.

The main growth drivers for online games are broadband availability, flat-rate access, more powerful hardware, consoles going online and growing global Internet users. Barriers remain, including high R&D and running costs (Canada and Korea have targeted R&D tax breaks, 60% of R&D cost is tax deductible), high production costs (USD 50 million for high profile games, 50+ developers for 3 years), lack of entertainment investments, uneven broadband penetration within and across countries, and content stagnation leading to loss of customer interest (customer loss rates are about 10% per month). Online games are the only game type with *no* piracy. Games cannot be stolen because two-thirds of the necessary programming remains on the server and the game evolves as players join and the game progresses.

*Mr. Murray Hume*, Head, SCEE Network Gaming Service, Sony, presented "The impacts of broadband network entertainment on the video games industry and its value chain". The games industry is very dependant on competition in telecommunications markets to deliver broadband to households and increase the share of homes with both high-speed Internet and game consoles as high quality network capabilities become a normal part of leading games. Non-game applications are also beginning to appear. Networked games are now being layered with online community development and service provision, new forms of content, and new devices, spurred by Interest in "public arena" access to broadband.

This leads to four key conclusions. First, networked consoles need competition in services and broadband supply, allowing multiple online communities to co-exist. Second, network entertainment changes the online game industry value chain, providing a shorter and more dynamic link between games developers and retail customers (depicted in Figure 8).

**Figure 8. Current and new online computer and video value chain**
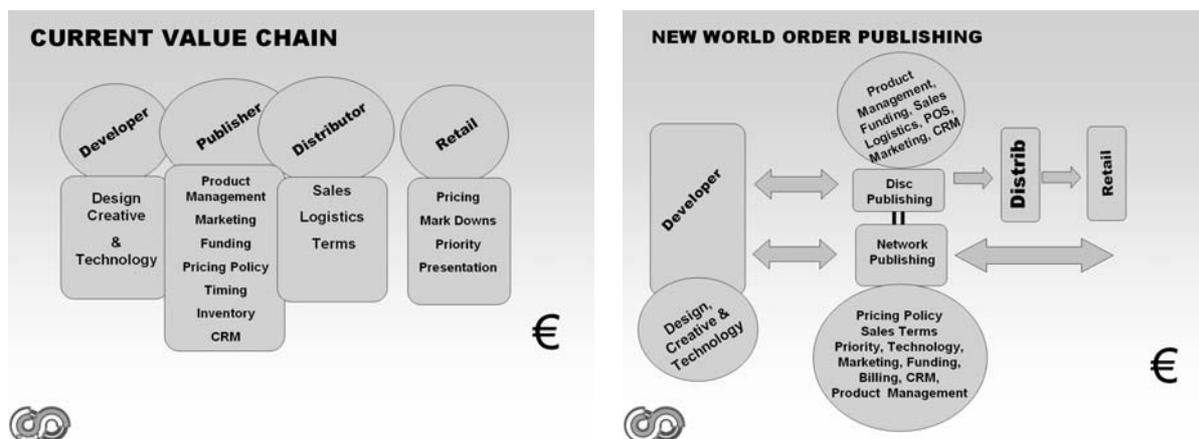


*Source:* Sony Entertainment Europe.

Third, as network services become part of online games, capability to deliver network publishing services will affect traditional disc publishing. Traditionally revenue came from disc sales. With online capabilities subscription and event fees are also part of the business model. Functions of network service delivery entail identity and authentication, event management, network QOS, game integration, marketing and communication, moderation strategy, billing and payment, customer service. Also, new partnerships are entered into. Sony Entertainment has more than 70 agreements with Internet Service Providers.

*Mr. Stephen Choi*, Director, International Business, M-Game (Korean game portal), offered an "Introduction to online game business in Korea". Korea is a success story in terms of the spread and usage of online computer and video games. Online games (including edutainment games which are a mix of education and games) are more popular than online shopping. At first, Korean games gained popularity through high broadband access in PC cafes. Due to the highest broadband penetration in OECD countries

(more than 10 million Internet users), games are now mostly played from homes. Sixty-three per cent of Internet users in Korea participate in online games, and the online segment accounts for 55% of the total games market (45% are females which is much higher than in Europe or the US). The total market has been growing at over 12% annually over the last few years. The online game segment has a much faster growth rate (200%) and is expected to reach USD 13 billion in 2007. Mobile games, though a smaller segment, are expected to be growing even faster through 2007. There are more than 300 game development companies in Korea (23 000 employees), with more than 50% being active in the field of online games. China is seen as a future major export market. A new value chain for a Korean telecommunication provider that operates an online game business service is illustrated in Figure 9.

**Figure 9. Infrastructure for Korean online game business**
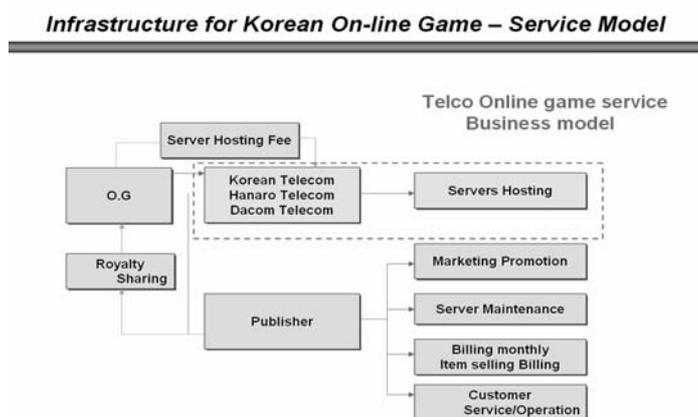


*Source:* M-Game.

Revenues come from board games, casual games and MMOG (Massively Multiplayer Online Game) and value added services (avatar shopping mall, community sites, item trading), and banner advertisements (see Figure 10). Revenues can also be generated by mobile games (downloading services).

**Figure 10. Business models for different games**

| Board games | - Monthly charge: normal USD 5 / premium USD 10<br>- 24 hour service and play (plus extra items for games)<br>- Charged by credit card, pay phone, ARS, bank T, mobile phone and ADSL |
|---|---|
| Casual games | - Monthly charge: combination of 20 games, plus item selling: USD 1 - 3<br>- 24 hour service and play<br>- Charged by credit card, pay phone, ARS, bank T, mobile phone and ADSL |
| Massively multiplayer online game | - Monthly charge: 1 month: USD 20-25, 3 month: USD 50-65, 6 month: USD 100-110, plus item selling: USD 3-5<br>- 24 hour service and play<br>- Charged by credit card, pay phone, ARS, bank T, mobile phone and ADSL |

Game services by Korean firms are available in 12 countries in Asia, Europe, the United States and Brazil. The Korean government (in the form of KIPA) is working towards a global standard for online game companies by 2005, combining a global digital content hub with infrastructure for global business.

*Microsoft presentation (submitted in writing by Michel Cassius)*: X-Box Live has 100 000 European paying subscribers and 750 000 world wide. By the end of June 2004 it was expected to have one million subscribers. In the online game business, opportunities for ISPs arise as Xbox Live drives broadband adoption, and an *entrée* is given to a new customer base. There are opportunities for publishers as new revenue streams in the form of premium content are offered and games get longer shelf life. Moreover,

opportunities for retailers arise as the console itself is still sold over the counter. Finally, opportunities for developers are that it is easier to integrate online components into games encouraging developers to develop new features. The main challenges are insufficient broadband adoption and underdeveloped payment modalities (*e.g.* micro-payment systems). Also, games have not yet reached a mass market and compelling and accessible content is in high demand.

**SUMMARY OF GOVERNMENT PRESENTATIONS
AFTERNOON SESSION**

**United Kingdom**

Mr. John Kroeger, Head, Computer Games and Internet Commerce, Digital Content and Publishing Unit, Department of Trade and Industry (DTI). "The changing content landscape and getting the policy framework right".

Businesses and policy makers face changing environments in the digital world. The availability of content has increased significantly with the user becoming a bespoke publisher. A new convergence has come about with content that should be accessible from anywhere through any device. The theft of intellectual property is a problem but DRM presents opportunities.

The DTI framework is supported by the Digital Content & Publishing Unit and is built around the DCF- Digital Content Forum, TIGA - The Independent Games developers Association and ELSPA – the Entertainment Leisure Software Publishers Association. The UK government is particularly interested in the games sector due to the high underlying growth of this high value added sector (GBP 2 bn industry and growing at 8-10% per year, providing 20 000 jobs, many high tech). The games sector uses leading edge R&D in areas like artificial intelligence and other computer science areas, where the United Kingdom has the reputation for innovation and creativity.

The DTI is active in promoting the games sector; despite its strong position it is struggling to move from a cottage industry to a global one. Moreover, many companies failed in the past 24 months.

The OECD can help with the following activities:

- Analysis, policy review and recommendations.

- Promote the message about the economic damage of piracy, to both established and developing markets.

- Discussion of DRM-related issues.

- Benchmarking / statistical analysis (little in-depth statistical analysis is available within an affordable cost range for many market participants).

- Spread of best practice information.

**Japan**

Mr. Masamichi Kono, Counsellor, Secretariat of Intellectual Property Strategy Headquarters, Cabinet Secretariat. "Promotion policy for content business in Japan (as Intellectual Property Strategy)".[3]

The Japanese promotion policy for content has moved from creating a legal environment for protecting intellectual property to promotion policies for content:

| | |
|---|---|
| February 2002 | Policy Statement by Prime Minister Koizumi |
| March 2002 | Strategic Council on Intellectual Property |
| July 2002 | Intellectual Property Policy Outline |
| November 2002 | Basic Law on Intellectual Property |
| March 2003 | Intellectual Property Strategy Headquarters |
| July 2003 | Intellectual Property Strategic Program |
| April 2004 | Promotion Policy for Content Business |

Japan's content business generates significant revenues, around USD 99.3 billion compared to USD 189.6 billion for the automobile industry or USD 46.9 billion for the steel industry in 2002. Broadcasting takes 33%, newspapers 22%, publications 21%, music 15%, movies 5% and game software 4% of the content business. The strongest growth areas are games software and movies. The publishing sector loses relative share but is growing. The music industry has been decreasing, and the industry has diversified into various new areas such as ring tones for mobiles. The market for ring tones in 2002 was USD 0.9 billion, about 6 000 times that in 1999 when the service started. The electronic publication industry is not large (about 0.04% of total publications) although it has grown rapidly (around 40-50% per year). There are approximately 40 000 electronic titles on sale, increasing by 1 000 titles per month.

The Japanese government has set three targets with ten reforms for content promotion:

*Target 1*    *Promote further modernisation and rationalisation through maintenance of the foundation for content business, such as funds, HR and technologies*
Reform 1    Promote modernisation and rationalisation through maintenance of foundation for content business, such as funds, HR and technologies
Reform 2    Diversify the financing method
Reform 3    Provide various incentives to production of content
Reform 4    Enhance development of human resources
Reform 5    Promote R&D and disseminate results

*Target 2*    *Make content business a leading industry through backing highly motivated creators, etc.*
Reform 6    Build creative human resources and reward them
Reform 7    Enhance education and dissemination

*Target 3*    *Encourage content business overseas and in new fields such as broadband*
Reform 8    Support entry into overseas markets and reinforce measures against piracy
Reform 9    Promote expanding content business through broadband
Reform 10    Develop environments for storing content data and disseminating them

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3    The IP Strategic Program can be downloaded from the following Web site: www.kantei.go.jp/foreign/policy/titeki/kettei/030708f_e.html.

**Figure 11. Ringtones as an example of successful copyright business in Japan**
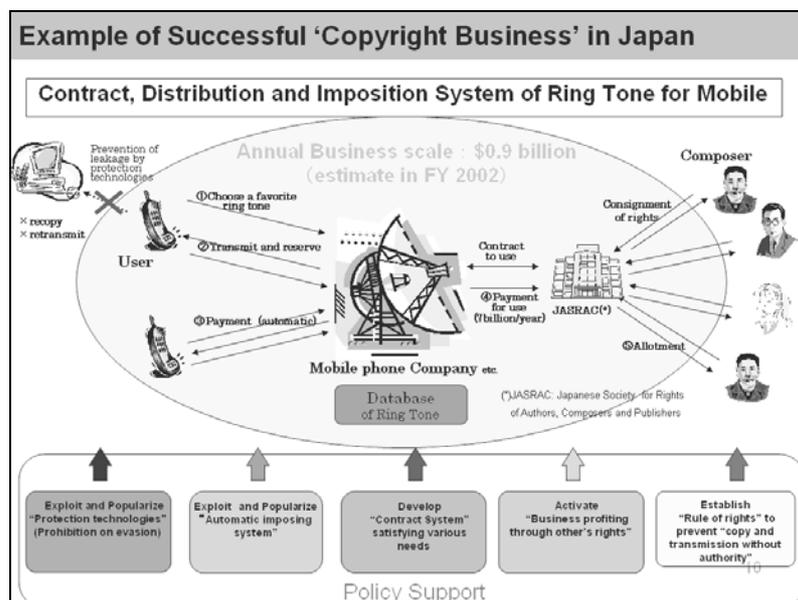


*Source:* Intellectual Property Strategy Headquarters, Cabinet Secretariat.

An example of policy measures supporting a successful copyright business is ring tones for mobiles. Policy measures and the related value chain activities are shown in Figure 11. Direct or indirect support for the ring tone business has been given in the areas of:

- Exploiting and popularising protection technologies.

- Exploiting and popularising "Automatic imposing / payment systems".

- Developing appropriate contract systems.

- Establishing systems that allow businesses to exploit other businesses' IPRs.

- Establishing rules to prevent copying and transmission without permission.

**Norway**

Mr. Eivind Lorentzen, Norwegian Ministry of Trade and Industry. "Norway's Strategy for Electronic Content".

Mr. Lorentzen presented the Norwegian strategy for Electronic Content 2002-2004. The underlying concept is a virtuous circle of development of infrastructure, leading to increased supply of content and services, leading to improved skills, leading in turn to improved infrastructures (Figure 12)**.**

**Figure 12. Positive feedback cycle between infrastructure, content and skills**
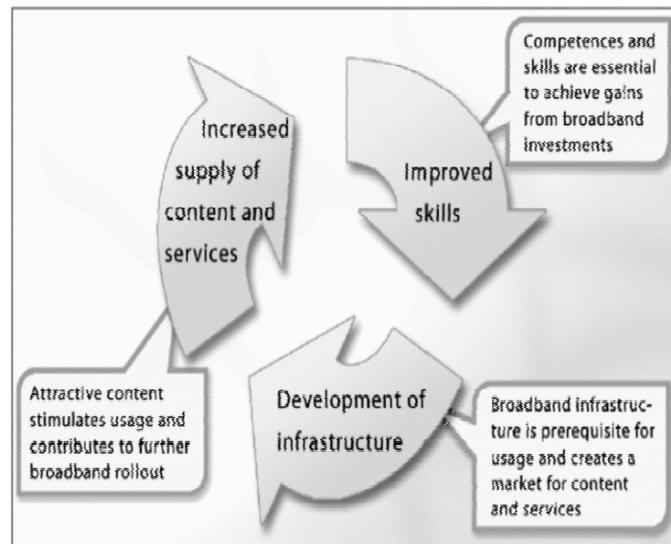


*Source:* Norwegian Ministry of Trade and Industry.

The objectives of Norwegian policy are to: *i)* ensure access to diverse Norwegian content; *ii)* stimulate a competitive content industry; *iii)* make content production contribute to the modernisation of the public sector and secure democratic participation.

*Strategy for electronic content*

The marketplace has responsibility for creating suitable business models. The government task is in establishing non-discriminatory framework conditions for creating innovative content, in the light of the question whether the content industry has special needs.

Actions undertaken:

- Studies to assess framework conditions and establish statistics.

- The establishment of user operated research programmes in content.

- Changing public support, innovation and procurement schemes to ensure non-discrimination of electronic content and foster growth.

- Focus on implementing European Union directives on the Information Society and other regulatory issues, while exercising restraint.

Experience and challenges:

- Business models *are* changing without government inference.

- High percentage of local content. But is there sufficient diversity?

- The market place is characterised by growth and rapid change, *e.g.* in educational content.

- Current statistics are insufficient.

- Content industries are mainly affected by general framework conditions.

- Tax incentive schemes for R&D foster content production, but are not necessarily suitable for SMEs.

- The relevance of user-operated research programmes in content remains to be seen (high interest, uncertain translation to viable businesses).

- Changing culturally motivated support schemes are being developed, but remain a challenge.

- A more active approach to creative industries might be needed to foster innovation.

*Content and the role of government*

Norway has recognised the strong role of government. The objective is to use outstanding government content to push the market forward, provide good services, and establish good access to public content resources:

- A comprehensive scheme for access to public sector information is being established.

- A general rearranging of the structure of public information is being suggested.

- Challenges are in changing budgetary practices and public sector culture for information sharing.

- Providing co-ordinated access to cultural and educational public resources. An active push is being undertaken.

    Setting standards through outstanding public services.

- Content handling and addressing issues such as electronic signatures, payment and universal design are important.

- Challenges are in understanding and implementing public procurement for content industries.

Addressing content issues specific to small countries. Language and language technology remains an issue. Both Norwegian and Sápmi are very small languages and government initiatives are being undertaken.

*Counteracting illegal and harmful content*

Counteracting illegal and harmful content on the Internet is another Norwegian priority. Information and attitude-building will contribute. The operational approach includes:

- SAFT-project – safety and awareness for tweens (Norway or EU).

- Information building and dissemination, good operative co-operation between information agencies, industry, education and police.

- Challenges are for relevance, evaluation and implementing digital competences in the education system.

*Summary*

- Content policies are about stimulating private initiative and removing obstacles.

- Content policies are closely linked with the modernisation of the public sector.

- There is a need for international statistics and policy definitions.

- OECD could be a lighthouse in the field of content.

**United States Federal Communications Commission**

Ms. Irene Wu, Federal Communications Commission. "Broadband in the United States: Regulator's view".

The key approach in the US presentation was that the broadband service market's characteristics may affect the content market. The broadband market is influenced by the degree of competition among broadband service providers, by the scale of the market and by the extent of broadband service availability. In this light there are an increasing number of US high-speed Internet providers (from 105 providers in 1999 to 378 providers in 2003).

Access issues that merit attention are wireline telecommunications (local loop unbundling required for incumbent telecom operators), cable television network (third party access) and spectrum issues (licensed spectrum such as 3G and fixed wireless; unlicensed spectrum, such as WiFi and Bluetooth in 2.4 GHz and 5 GHz; Satellite operators licensed).

Subsidy programmes play a role in some cases. This involves the Universal Service Program with the Schools and Libraries Program getting subsidies for Internet service (which can include broadband) and subsidies from the Agriculture Department for Rural Utilities Service that entail loans for broadband service for areas with fewer than 20 000 people.

President Bush's recent broadband statement stated that: "We ought to have universal, affordable access for broadband technology by the year 2007, and then we ought to make sure as soon as possible thereafter, consumers have got plenty of choices when it comes to purchasing the broadband [service]."

A New Generation of American Innovation involves the following action points:

- Making broadband access tax-free to lower cost for consumers.

- Enable rollout of new technologies, such as making more spectrum available for wireless broadband.

- Federal land management – simplify and standardise rights of way processes.

**Korea**

Ms. Young-A Im, Deputy Director, Knowledge & Information Industry Division, Ministry of Information and Communication. "New Growth Engine: Digital Contents Industry".

The Korean digital content promotion policy is based on promotion of broadband in Korea and special policies for the promotion of the digital content industry.

*The promotion of broadband in Korea*

The broadband IT Korea promotion strategy has as its goal to make Korea the leading IT nation in 2012. From 1990 to 2002 high-speed Internet has been deployed in Korea and broadband with speeds from 50-100 Mbps is expected in 2012. Recently the 8-3-9 strategy (8 services, 3 infrastructures, and 9 growth engines) has been developed by the Korean government. Digital content is listed as one out of the nine growth engines. The underlying three infrastructures are broadband convergence networks, U-sensor networks and Internet protocol v6. Among the eight key services are wireless portable Internet, terrestrial and satellite digital TV, and home network services. The goals of this strategy are to contribute to greater production from the IT sector, increase IT employment to 1.5 million jobs by 2007 and increase IT-related exports to USD 110 billion in 2007.

*Policies to promote the digital content industry*

The definition of digital content goes beyond entertainment content (for convenience: interactive distance learning, remote inspection, customised distance medical treatment; for entertainment: interactive DTV, network games, broadcasting network; for tasks: interactive home shopping, home banking, energy management; for security: information management security, etc.). These different content concepts revolve around fully networked homes and enterprises. Until 2010, animation, mobile content, e-learning, DTV content, publishing, music and games will have the strongest revenue growth. The Korean digital content industry is expected to contribute significantly to Korean exports (with games and IT solutions leading and animation, Internet content and mobile content following). Korea builds on its strengths in 3D graphic production capabilities, mobile content, and its existing infrastructure services (wire/mobile high speed network infrastructure, competitive human resources, online game services, leading exporter of handsets).

New opportunities are seen in online games (multi-platform games), digital animation (3D content production), mobile content (promoting Wireless Internet Platform for Interoperability-based content, developing 3D mobile content technology, and promoting world standardisation), DTV content (link between interactive TV content and T-commerce, reform policy settings to promote the convergence of TV broadcast and telecommunication) and e-learning (develop co-operation between government departments, build an e-learning content library and set standardisation). Five policy bundles are designed to reach theses goals:

*Strengthen the industrial foundation*

- Creation of Foundation for Diverse Digital Content.

  Support to Development of Leading Advanced Tech-Based Content.

  Support to Development of e-Learning Digital Textbook.

- Enhancement of Business Profitability Base.

  Promotion of Standard Contract Format for Fair Competition.

- Protection of Investors and Consumers.

  Technical Protection such as DRM and Watermarking against Illegal Copying.

  Reorganisation of Legal Systems for Consumer Protection.

*Support growth ventures*

- Formation of DC Park with IT Complex.

  Professional One-Stop Support from Start-up to Export.

  Joint DC Production Centre, IT Experience Hall etc.

- Formation of Regional DC Industry Base.

  Share Image Processing Equipment at Regional Multimedia Support Centres.

- Environment for Investment for Growth Promotion.

  Organisation of Investment Co-operatives (WON 50 billion).

- Systematic Information Provision

  Market Survey, White Paper and Demand Forecast.

*Technology and standard development*

- Construction of DC Technology Development Agency.

  Virtual Reality Development Lab.

  Expansion of University ITRCs (5 University ITRCs).

- Development of Core DC Technologies.

  Platform Independent Game Software Technology.

  - Development of Safe Distribution Technology such as DRM.

  - Development of Core Intelligent e-Learning Technology.

- Promotion of Digital Content Standards.

  Establish standards for games, e-learning and DRM.

  Enhanced co-operation with International Standards Organisations.

*Human resource development*

- Foster Highly Skilled Workforce at Schools.

  Help Reorganise DC Curricula.

  - Support Development of Cyber Education Courses

- Scholarships for Global Market Workforce.

  Scholarship for Master Degree and PhD Courses Abroad

  - Invite renowned Professors

- Female Professionals and Youth Training.

  Female workforce.

  - DC Production Contest among students

*Promotion of overseas marketing*

- Localisation of Promising Export Content.

  Platform Conversion, Device Optimisation for Export.

  - Legal Service

  - Test-bed at iPark for Online Game Export

- Base Points for Overseas Marketing.

  Scholarship Local Market Channel (GPP) for Export of Digital Content.

  - Marketing Meetings through GPP (Global Publishing Post)

- World Class Digital Content Trade Shows.

**Italy**

Ms. Daniela Battisti, Ministry for Innovation and Technologies. "eContent Policies and Actions Plans".

The diffusion of broadband infrastructure has been one of the main goals of the Italian government. The penetration of broadband has shown very rapid growth between 2002 and 2003, with connection growth of 135%. In order to sustain the continuous growth of infrastructures, it is necessary to strengthen the development of broadband content and services. The approach to the information society is based on the development of broadband infrastructure and standards regulations, and digital rights. The Italian government plans to:

- Promote demand through public demand aggregation and private demand promotion.
- Participate in development of specific content.
- Develop "enabling factors" for the usage of digital content.

*Sviluppo Italia* (the National Agency for Enterprise Development and Investments) has the task to develop content, services and infrastructures. Sviluppo Italia has created two specialised subsidiaries:

- *Innovazione Italia*: to develop programmes and services for citizens, public institutions and companies to be used on broadband networks.
- *Infratel Italia*: to create infrastructures useful to the development of broadband.

Starting projects aim to bridge the digital divide and the infrastructure gap penalising southern regions.

The promotion of content and services development may also support the digital content industry that is facing barriers to growth. The main obstacles to development of broadband content are:

- Restricted markets due to low propensity to pay for digital content, concentration on traditional platforms, large-scale piracy.
- Industry fragmentation in particular in production activities that penalises long-term investments in concentrated markets.
- Lack of sustainable business models and difficult access to financial resources.
- Uncertainty on how to protect digital content rights.
- High production costs due to low volumes, costly production processes, and lack of standards.

*Innovazione Italia* is launching promotion policies for digital content by increasing "critical mass" with a strategy based on two main pillars:

- Increase the number of content users in Italy through enlargement of supply. Develop projects that stimulate public demand (*e.g.* school education) and private demand (*e.g.* "school e-books").
- Increase content users abroad by promoting Italian cultural identity and the "Italian Brand".

Projects will focus on the aggregation of public demand by emphasising the synergies of "vertical" projects in progress. MIUR and public institutions have launched many potentially synergic innovative school projects. In addition, synergies with other projects of social and economic relevance are being considered (Tourism 2010, Health 2010, Virtual School PA, School 2010, projects of e-Government, Digital TV, Plan for Digital Innovation of Italian companies).

Common elements are:

- Stimulate the supply of multimedia content to develop the content market.

- Stimulate services for interactive image management, promotion of experts (*e.g.* tutor, media publisher, instructional designer).

- Exploitation of existing platforms.

*Guidelines for the promotion of sustainable business models*

A major goal is the promotion of sustainable business models for the digital content industry:

- Design initiatives and actions to develop sustainable long-term business models.

- Aggregation, qualification and promotion of public demand to increase "critical mass" and support business model sustainability.

- Other instruments include:

    - Public-private partnerships to increase private commitment to start-up and initial funding.

    - Addressing Digital Rights Management issues (*e.g.* "digital rights brokers").

    - Defining interoperability standards at European level.

The overall policy must be co-ordinated at European level in partnership with main players (local Governments, companies).

*Increase digital content and services markets by increasing "critical mass"*

Develop projects that stimulate public demand (*e.g.* education for schools) and private demand (*e.g.* families that purchase "school e-books"). Growth in the number of users will follow the promotion of digital content usage, starting from school education (Guidelines for digital content in school education). The Italian Government is also using digital content in schools to change teaching methods through:

- Development of applications that include multi-device usage (*e.g.* mobiles, PDA, TV, PC and consoles for games).

- New connection technology (DSL/T3/T1/cable, UMTS and WiFi hot spot in schools).

- Making use of media/games software and techniques to provide innovative learning.

*Promotion of Italian digital content abroad*

Develop digital content aimed at two targets:

- Italian communities abroad, to sell content and services made in Italy in the original language.

- "High spender trans-national segment" interested in access to the Italian life style (fashion, design, tourism). Offer general multi-language digital content focused on attractive areas by dimension, potential users, digitalisation level, competitive context, presence of Italian companies, etc.

## ANNEX 1: AGENDA OF THE OECD PANEL ON DIGITAL CONTENT
## BROADBAND CONTENT PANEL
## PARIS, 3 JUNE 2004

**08:30 - 09:00    Registration**

**09:00 - 09:10    Address and introduction by the Chair and the Secretariat**

*Session 1:    Rise of Digital Content and Value Chain Developments*

**Speakers:**   9.10-9.25     Laurent Michaud (IDATE):  Growth of broadband content: Stocktaking and outlook
                9.25-9.40     Dennis Weller (Verizon):  Evolution of the value chain: Adaptation for digital delivery in a broadband world
                9.45-10.00    Seishi Tsukada (NTTDoCoMo):  DoCoMo's 3G services in Japan

*Session 2:    transforming value chains, changing business models and obstacles:
scientific and technical publishing, music and online computer games*

**10:00 - 10:30    Scientific and technical publishing**

**Speakers:**   10.00-10.15  David Worlock: (Digital Content Forum / Electronic Publishing Services): Changing business models in the scientific, technical and medical publishing market
                10.15-10.30  Piero Attanasio (Italian Publishing Association):  The STM publishing value network: an increasingly complex picture

**Discussion**

**11:00 – 11:40    Music**

**Speakers:**   11.00-11.15  Barney Wragg (Universal Music International): UM digital music distribution
                11.15-11.30  Stanislas Hintzy (OD2): Developing a business model in Europe: Experience at the forefront
                11.30-11.40  Sara John (EMI Music):  The digital value chain and new economic models

**11:40 – 12:40    Online computer and video games**

**Speakers:**   11.40-11.55  Gaute Godager (Funcom): Worlds within worlds: Massive online games, the future of gaming
                11.55-12.10  Nainan Shah (Sony): The impacts of broadband network entertainment on the video games industry and its value chain
                12.10 -12.25 Stephen Choi (M-Game): Korean online game business statement

**Discussion**

**Summary by David Worlock and Conclusions by the Chair**

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The morning panel was followed by presentations on national policies and issues by Delegates from Italy, Japan, Korea, Norway, the United Kingdom and the United States.

# AFTERNOON GOVERNMENT PRESENTATIONS

**1.      United Kingdom**

Mr. John Kroeger
Head, Computer Games and Internet Commerce

Digital Content and Publishing Unit

Department of Trade and Industry

"Changing content landscape and getting the policy framework right"

**2.      Japan**

Mr. Masamichi Kono
Counselor
Secretariat of Intellectual Property Strategy Headquarters, Cabinet Secretariat

"Promotion policy for content business in Japan"

**3.      Norway**

Mr. Eivind Lorentzen
Ministry of Trade and Industry

"Norway's strategy for electronic content"

**4.      US Federal Communications Commission**

Ms. Irene Wu
Federal Communications Commission

"Broadband in the United States: Regulator's View"

**5.      Korea**

Insoo Kim
Director, International Organisation Division
Ministry of Information and Communication

"New growth engine Digital contents industry"
*Policies for promotion of digital contents industry*

**6.      Italy**

Ms. Daniela Battisti
Ministry for Innovation and Technologies

"eContent policies and Action Plans"

**ANNEX 2:**
**OECD RECOMMENDATION OF THE COUNCIL ON BROADBAND DEVELOPMENT**
[C(2003)259, 12 February 2004]

**THE COUNCIL,**

Having regard to article 5(b) of the Convention on the Organisation for Economic Co-operation and Development of 14 December 1960;

Having regard to Rule 18(b) of the OECD Rules of Procedure;

Having regard to the document of the Committee for Information, Computer and Communications Policy entitled "Broadband Driving Growth: Policy Responses" [DSTI/ICCP(2003)13/FINAL];

RECOMMENDS that, in establishing or reviewing their policies to assist the development of broadband markets, promote efficient and innovative supply arrangements and encourage effective use of broadband services, Member countries should implement:

- Effective competition and continued liberalisation in infrastructure, network services and applications in the face of convergence across different technological platforms that supply broadband services and maintain transparent, non-discriminatory market policies.
- Policies that encourage investment in new technological infrastructure, content and applications in order to ensure wide take-up.
- Technologically neutral policy and regulation among competing and developing technologies to encourage interoperability, innovation and expand choice, taking into consideration that convergence of platforms and services requires the reassessment and consistency of regulatory frameworks.
- Recognition of the primary role of the private sector in the expansion of coverage and the use of broadband, with complementary government initiatives that take care not to distort the market.
- A culture of security to enhance trust in the use of ICT by business and consumers, effective enforcement of privacy and consumer protection, and more generally, strengthened cross-border co-operation between all stakeholders to reach these goals.
- Both supply-based approaches to encourage infrastructure, content, and service provision and demand-based approaches, such as demand aggregation in sparsely populated areas, as a virtuous cycle to promote take-up and effective use of broadband services.
- Policies that promote access on fair terms and at competitive prices to all communities, irrespective of location, in order to realise the full benefits of broadband services.
- Assessment of the market-driven availability and diffusion of broadband services in order to determine whether government initiatives are appropriate and how they should be structured.
- Regulatory frameworks that balance the interests of suppliers and users, in areas such as the protection of intellectual property rights, and digital rights management without disadvantaging innovative e-business models.
- Encouragement of research and development in the field of ICT for the development of broadband and enhancement of its economic, social and cultural effectiveness.

INVITES governments to encourage their private sector, in their broadband development activities, to take due account of this Recommendation;

INSTRUCTS the Committee for Information, Computer and Communications Policy to monitor the development of broadband in the context of this Recommendation within three years of its adoption and regularly thereafter;

INVITES the Secretary-General to make this Recommendation available to non-member economies.