



CHAIRMAN'S REPORT

Introduction

1. At the invitation of the ITU Secretary-General, a workshop was held in Geneva, from 9-11 April 2003, to discuss the topic of "Promoting Broadband". The Workshop was organized as part of the Secretary-General's "New Initiatives" programme. Some 38 experts participated in the meeting, representing a range of regulatory and policy-making agencies, broadband providers and other private firms, international and regional organizations, academic institutions and others. Those present at the meeting participated in an individual capacity. Dr Richard Horton, a senior programme manager at the Commission for Communications Regulation in Ireland, chaired the meeting.

2. A background paper and list of issues had been prepared in advance of the Workshop and were presented and discussed. In addition, a number of case studies had been commissioned, covering Canada, Iceland, Japan, the Republic of Korea and Hong Kong, China¹. The experiences of a number of other countries and communities were presented, including those of Australia, Bhutan, Colombia, Denmark, Jordan, Malaysia, United Kingdom, United States and Stockholm, Sweden. Broadband providers that presented their experiences included Korea Telecom, Estonia Telecom, Hanaro Telecom, CyberCity InterNet and Intelsat, as well as Cisco Systems, an equipment provider. Other organizations participating in the discussion included OECD, WIPO and INTUG. It was agreed that the information provided and the discussion generated were extremely useful, especially to those currently involved in developing national programmes and working to bridge the digital divide.

3. Around the world, there were around 62 million "broadband" subscribers at the start of 2003 (compared with 1.1 billion fixed-line users), enjoying a range of service speeds from 256 kbit/s up to 100 Mbit/s. The number of subscribers is growing rapidly, with a 70 per cent increase during 2002. DSL is currently the most commonly deployed platform, followed by cable modems, metro Ethernet, fixed-wireless access, wireless LANs, satellite and other technologies. The vast majority of today's users are in the developed world, but even among OECD countries, there are large disparities, not only in service availability but also in terms of quality of access and price per Mbit/s.

Why promote broadband?

4. Before discussing effective techniques for promoting broadband, a more fundamental question is 'why promote it?' The answer is different for governments, companies, individual consumers and business users:

- For governments, broadband is seen as a way of promoting economic and social development. For instance, in the Republic of Korea and Hong Kong, China, which are currently the leading broadband economies, telecommunications expenditure as a percentage of GDP grew up to three times faster in the last ten years than the global average. Broadband can also facilitate the provision of public services, such as e-learning, telemedicine and e-government.
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¹ All of the meeting documents and presentations are available on the ITU website at: <http://www.itu.int/broadband> and will be published later on CD-ROM.

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- For telecommunication companies, broadband offers a way of avoiding the current slowdown in revenue growth. In Korea, the average revenue per user (ARPU) for a broadband user is up to seven times higher than for a narrowband user. Worldwide, the broadband market was estimated to be worth some US\$ 22 billion in 2002.
- For consumers, broadband makes possible a much wider and richer range of applications, especially when higher speed services are available. For instance, in a user survey in Japan, 70 per cent of users reported that broadband had increased their usage of the Internet. In Iceland, some 40 foreign TV channels are broadcast over the broadband network, greatly increasing the choice of services available. It is difficult to estimate the future bandwidth requirements of users: In Estonia, for instance, the typical connectivity requirement for providing broadband to each school has risen to 100 Mbit/s, and a further rise to 1 Gbit/s is projected.
- For businesses, in particular small and medium-sized enterprises, broadband brings advantages previously only available to larger companies in terms of access to high-speed communications, and the ability to reach a worldwide audience. Broadband also adds flexibility to the workplace through teleworking and remote network access at fast speeds.

Success factors for broadband

5. In relation to broadband growth and development, success factors vary from country to country. However, those countries that tackle both supply and demand issues have had most success in raising availability of broadband and in the quality and choice of services. A number of common factors can be identified:

- **Competition** – Both inter-modal and platform-based competition (cable modem, DSL, fibre and wireless in countries such as Canada and Iceland) and/or inter-operator competition help drive high broadband deployment and take-up (as in the case of DSL in Japan).
- **Innovation** – Promotion of innovation in relation to broadband technology and applications by both government and private industry has been a key factor in the success of countries such as Japan (with its rapid Fibre-to-the-Home build-out and its Ubiquitous Network Initiative) and Iceland (which offers broadband across power lines as well as via DSL and cable modem) and Korea (through the provision of converged networks).
- **Applications** – Development and rollout of pure-play broadband applications, such as online games in Korea, has attracted a critical mass of users and demands a high-capacity connection offered by broadband. Broadband offers users the possibility of receiving voice, data and broadcast entertainment (“triple-play”) over the same service. For society as a whole, broadband opens up a wide range of additional potential services, including e-learning, e-health and e-government.
- **Pro-competitive regulation** – A key regulatory strategy employed by a number of countries is an open access policy, which encourages shared access to networks. Canada is notable in this regard having unbundled both its copper and cable networks. Low charges for local loop unbundling and collocation are also important (Japan, Iceland).
- **Price** – Affordable, innovative and transparent pricing schemes, such as flat-rate packages, are important to help promote user take-up. One example cited was Finland where a new entrant operator has recently bundled a shared DSL connection to a number of subscribers in an apartment complex for as little as €6 per month.
- **Speed** – The existence of genuine high-speed and high-quality service offerings to consumers promote a wider range of applications.
- **Marketing** – Aggressive promotion of retail broadband services to consumers and user-friendly packages, which can be installed by the user (“plug and play”) help create awareness. In Hong Kong, China potential customers are offered competing low-priced DSL services from hawkers at street stalls.
- **High ICT usage** – Those countries with high PC and Internet penetration have seen users embrace broadband. Iceland has the largest PC and Internet penetration per capita in the world and is now in the top tier of countries with regard to broadband penetration.

- **Urban demographics** – Broadband has tended to grow fastest in environments with highly-urbanized populations, especially where a high percentage of citizens live in apartment blocks. User take-up is also more rapid among the young.
- **Benchmarking** – Timely and reliable statistics in relation to a country's broadband penetration, coverage and usage are a valuable policy tool to allow governments to measure their progress against other countries and address bottlenecks.

Country case studies prepared by the ITU highlight these factors to varying degrees.

6. It is also illuminating to note those factors that can stifle broadband rollout. These include continued monopolies and low levels of competition, high or metered pricing, the imposition of caps on volume that could be downloaded within a flat rate, lack of competition in the middle mile and state subsidies that produce market distortion. Broadband deployment has also been significantly slower in those economies where there is cross-ownership between telephone and cable TV networks as this reduces the potential for inter-modal competition.

Innovative approaches

7. Innovation, in terms of technological, commercial and policy development in promoting broadband, was a pervasive and recurring theme throughout the workshop. Its various facets impinge on broadband development and promotion in various ways, surfacing for example in network technologies, applications and devices, convergence of services, new commercial and business models, government broadband policy development and approaches to regulation.

8. It was apparent from many of the presentations and discussions that broadband innovation, notwithstanding the current difficulties in parts of the ICT sector, continues to move quickly, and is characterised by its inevitability, coupled with uncertainty. Many of the price, choice and quality benefits that broadband users, present and future, may look forward to and hopefully will experience in future can only come about through innovation. The broadband industry also needs innovation if it is to be vibrant and flourish. Uncertainty in technological developments, in emerging applications and the demand for them, and the diversity of broadband markets in different countries and regions, point to the need to keep broadband options open, in part by pursuing technology-neutral broadband policies.

9. There is plenty of headroom for broadband innovation, and this should help policy-makers and regulators in various ways. For example, some new breakthrough or important incremental innovation in broadband is never likely to be far away, for the foreseeable future at least. This can be a valuable source of helpful competitive pressure in terms of encouraging broadband rollout, keen prices and quality improvements. Also, it was clear from some of the workshop presentations and discussions that policy-makers and regulators can and should look to some of the vivid examples of broadband being deployed in innovative and worthwhile ways, and use these examples to draw attention to the benefits that the use of broadband can bring.

Content development and intellectual property protection

10. Some of the most popular content and applications currently available for broadband are tied to entertainment (e.g. online gaming, music streaming, and video) and enhanced communication (e.g. IP telephony, video chat). However, content and applications targeted at business users, both large and small, can encourage broadband take-up by a market segment that typically has more money to spend on services than households. This is especially important in developing economies where initial broadband connections can target those with the most demand and willingness to pay. Examples include the Ladiprint graphics art shop in Colombia that uses a 128 kbit/s satellite connection to send and receive large files to and from clients abroad.

11. In addition, local language content plays a key role in economies such as Korea, Japan, and Hong Kong, China. At early stages, economies often start as net importers of content but local content becomes dominant after a certain threshold of penetration. This phenomenon is evident in Korea, which has progressed from being a net content importer to having a Korean language web site (Daum) ranked in the top five most popular sites in the entire world.

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12. Compelling broadband content can also help justify network expansion into small, underserved communities. Distance learning and e-health applications can justify investment in rural networks. In rural northern Canada, broadband has enabled doctors to consult patients weeks before a doctor could physically make the rounds to the remote region.

13. It is clear that businesses must work out effective business models for content in order for more content to come online. In particular, intellectual property rights regimes need to strike a balance between rewarding content producers and allowing flexibility to users. While broadband portals such as Hong Kong's NOW.com (www.now.com.hk) offer a glimpse towards possible successful business models, most other economies have had a difficult time finding paying users for legitimate content. Possible solutions could include new digital rights management, to control when and how content is used; systems for community ownership; and extended collective licensing schemes that allow the use of all content for a set fee.

14. As businesses struggle to find successful business models for delivering content, traditional broadcast technologies, such as terrestrial radio and television will continue to develop and evolve, offering users less incentive to switch to broadband. While broadband promoters highlight how broadband is well adapted for non-linear content, equipment such as TiVO personal video recorders are enabling non-linear viewing of terrestrial broadcasts.

Government's role in promoting broadband

15. Although the primary role of government in promoting broadband lies in creating the right policy environment, governments can also play an important role in stimulating demand and formulating national, regional and local programmes to support the deployment of broadband, especially in areas of market failure or through universal service policies.

- In Korea, for instance, the focus of government policy has shifted over time, from building up domestic manufacturing capability in the 1980s, to building broadband backbones in the 1990s, to developing e-government applications and training users in the current decade. Korea's choice to invest in future networks during the Asian financial crisis in the late 1990s offers useful lessons. Although it is the private sector which has created Korea's broadband success, the government has played an instrumental role in creating the shared vision of the creative, knowledge-based society.
- In Malaysia, a National Broadband Steering Committee has been formed to develop a national plan. The aim is to establish Malaysia as a global hub for the communications and multimedia industry. The target is to reach 12.5 million broadband subscribers (compared with just 25'000 now) by 2007. It is anticipated that the public sector, especially universities, schools and healthcare centres, will drive wider consumer demand for broadband. The action areas identified in the programme are demand development, public sector broadband deployment, supply-side intervention, regulatory change, institutional change and funding.
- In Canada, both federal and provincial governments, as well as local communities, have been active in policies to promote broadband. The federal policy on "Connecting Canadians", launched in 1998, aims to make Canada the world's most connected country. A national broadband taskforce reported in November 2001 and proposed a number of schemes designed, in particular, to reach unserved communities and particular user groups that would not expect to be served under a normal free market operation. More recently, a National Pilot Programme entitled "Broadband for Rural and Northern Development" was launched that will assist unserved communities in obtaining broadband access by stimulating market forces. Provincial level initiatives include the Alberta SuperNet and "Villages branchés du Québec", while local initiatives include the Rat River Communications Co-operative.

Effective regulation

16. Effective regulation plays a key role in achieving competition in broadband markets. For example, a regulatory environment promoting facilities-based competition is seen by many as an important catalyst for sustainable long-term competition in the market. Some common approaches include the lowering of licensing barriers to facilities-based market entry and ensuring reasonable cost access to rights of way. Although a competitive multi-player market is desirable, effective competition can also be achieved where there is strong inter-modal competition between cable modem and DSL operators, such as in the case of

Canada. In some cases, however, this may require the mandatory divestiture of cable TV networks by incumbent telecommunications carriers.

17. To achieve significant levels of competition in a relatively shorter period of time, many countries have also adopted regulatory frameworks that also encourage service-based competition. Cost based access to the unbundled local loop and/or line sharing have been mandated in many countries with significant competition in the broadband market, notably in Korea and Japan. In addition, the regulation of collocation and access to inside wire has also been identified as an important condition for service-based competition to succeed in the market.

18. Countries can also promote competition in broadband markets by encouraging the deployment of alternative networks, for example using wireless technologies. By making more spectrum available for wireless broadband networks, a larger number of broadband providers will be able to enter the market. Hong Kong Broadband Networks has had considerable success in using fixed-wired access combined with metro Ethernet.

19. Beyond concentrating on last-mile access, regulators will also have to ensure that other bottlenecks in the supply of broadband services do not emerge. In particular, high leased-line prices may significantly increase the cost of providing broadband access.

Developing country experiences

20. While developed economies contain the majority of broadband subscribers in the world, developing economies are beginning to provide and promote broadband. Experiences vary based on several factors including geography and population. Many developing economies fall into a vicious cycle of high prices and low take up. Users cannot afford the initial prices and thus providers can't negotiate better rates for higher bandwidth.

21. Two viable methods for promoting broadband include connecting schools and using community access centres to give users access to broadband without the vast fixed costs of wiring to homes. Developing economies must also make best use of the existing networks since they usually don't have the financial resources to build new networks. The COMPARTEL programme in Colombia provides a good example of extending access through community access centres.

22. Other countries such as Jordan have addressed broadband through government initiatives including e-government, e-health, and e-learning. Projects include initiatives that focus on teaching teachers how to interact and deliver material via computers and broadband connections.

Role of the ITU

23. A number of possible roles for ITU were discussed that go beyond the current technical standardization work undertaken by its ITU-T sector. In particular, timely, accurate and well-defined statistics on broadband should be collected and disseminated by ITU in order to facilitate the identification of global best practices. ITU can also provide case studies of successful broadband deployment and the trends towards convergence. Awareness building, particularly for developing countries, through workshops and other similar activities was also identified as important work that ITU is doing (notably in ITU-D Study Group 2, questions 12, 1/2 and 22) and should continue.