



# ISSUES PAPER

## Introduction

The Internet has grown and diffused extremely rapidly in OECD economies providing a platform for business and consumers for economic and social activity. The resulting Internet economy now permeates all service and manufacturing activities, is increasingly being used by governments in delivering services and for administrative purposes, and has become a key social resource to access information and for social interaction. Access to the Internet facilitates freedom of expression and of association, enables knowledge sharing, learning and collaboration. The global reach of the Internet has developed rapidly allowing for more transborder economic and social integration, supporting transborder commerce and information exchange. The development of high-speed broadband has been crucial in this process supplying users the platform to access the Internet.


The strength and dynamism of the Internet depends on its multi-stakeholder model of development and management, global and decentralised nature, openness and on user confidence and the rule of law. Increasing attention has been given in recent years to ensure the continued policy support to uphold the dynamic nature of the Internet, its openness and the ease of access to high-speed networks. In addition, work has focused on the development of technical standards which are important in enabling the continued national and global expansion of the Internet and contribute to innovation and interoperability.

This paper provides a background to the issues for the sessions at the High-Level Meeting and is structured so as to reflect the different sessions of the High-Level Meeting.

## Broadband access

At the Seoul Ministerial on the Future of the Internet economy, Ministers undertook to ensure that broadband networks and services were developed to attain the greatest practical national coverage and use. At present, in most OECD countries, communication services are delivered over wired and wireless networks originally constructed for telephony or television. In recent years these networks have been substantially upgraded and new capabilities added to accommodate a convergence of services over the Internet and support the growth of new services.

To support the Internet economy, and the further development of fixed and wireless networks, high-speed access will need to be brought much closer to the end-user. This will require significant investment in networks and this process is well underway across the OECD area – though the challenges are not inconsiderable and the degree of advancement is uneven across countries. The level of investment required is such that concerns have been raised on sustaining competition and fostering competition, particularly in less dense urban areas and in rural and remote areas. It is clear that the approaches adopted will need to differ to reflect the needs and circumstances of different countries.



This raises a number of issues, given the importance all stakeholders attach to national coverage of high-speed networks. Policy makers are debating how best to obtain expanded coverage of broadband, how to attract private investment in this infrastructure and how to encourage the competitive delivery of services over these networks. At the same time, they recognise that markets may not reach all users and, if they did, whether the cost of new infrastructure would sustain multiple network provision. This has raised the question of the extent to which public funding should be made available, in areas unlikely to be served by the market, and the implications of such funding for private investment and the governance of the networks that do receive public financial support (*e.g.* so called open access networks). In addition, if national goals for the level of service are to be established, as some countries have done in terms of capacity, what should they entail and how should they be delivered (*e.g.* universal service schemes, public financial support).

Fixed and wireless networks may be competitive and complementary. Substantial investment is required to ensure further service innovation for these platforms. Wireless networks provide the inherent benefit of mobility and can sometimes reach areas and regions that cannot be served economically by fixed networks. New generations of mobile broadband and new types of user devices are providing a range of new services and innovation. They also provide competition, to fixed networks, for some traditional and new services. That being said, to achieve the potential of wireless, two key factors are required. One is the expansion of fibre, ever closer to users, to do the “heavy lifting” in terms of supporting wireless network performance. In addition, policies to ensure that adequate spectrum is made available, to support wireless data access, are important for both rural as well as dense urban areas where congestion can slow wireless access. The digital dividend has created an opportunity for enhancing access to spectrum for Internet access. Other technologies also have a role to play. For those countries with widespread cable television networks this technology may be upgraded at a lower incremental cost than other alternatives as well as supplying an important source of competition. The use of copper networks, with technologies such as VDSL, is also likely to be extensively used even as fibre draws closer to some users or provides the final connectivity to others. Moreover, satellites are likely to play a role in providing connectivity for users in the most remote areas. Thus, at least in the short to medium term, a variety of technologies will be used to provide Internet access. Enhancements to existing technologies and new technologies are also likely to emerge.

While a range of technologies will underpin the Internet Economy, over the next decade, it is fibre that presents some of the most significant potential challenges for traditional approaches. Indeed, the success of the Internet, to date, is undoubtedly due to the openness and pro-competitive nature of policies and practices. Fibre, which is the backbone of all today’s fixed and mobile networks, supports the capacity envisaged necessary for future innovation. Governments and regulators need to ensure that policy frameworks are adjusted to take into account the potential and limitations of new technologies. Policy-makers need to be aware of the significant investments required to allow for further development in fibre networks which could engender risks to investors, but also to the extent such networks exhibit natural monopoly characteristics, constraints on the development of competition in markets. At the same time, policy makers should ensure that policies and investment in fibre networks do not discourage investment in new Internet access technologies.

The initiatives taken by OECD countries in trying to develop nation-wide high-speed broadband networks have been markedly different so that an exchange of views on these issues is important to obtain insights into effective approaches and best practice and the role government could play.

It is important that governments, having placed priority on the development and diffusion of high-speed broadband networks, also have the ability to measure progress in terms of coverage of networks and their take-up. Metrics, therefore, play an important role as does adequate benchmarking in order to judge the relative success of policies.




### Issues for discussion:

- What public policy initiatives are countries taking to stimulate private investment in new high-speed Internet access technologies, in particular in rural and remote areas where competition is not resulting in investment? What incentives can be developed to stimulate investment in these areas? What is the role of government in this context?
- What is the role of different technologies – fibre to the home (FTTH), fibre to the building (FTTB), fibre to the cabinet, DSL/VDSL, copper, cable TV, mobile and fixed wireless and satellite?
- What role will high-speed mobile networks play in providing access? Do they provide adequate capacity at competitive prices? What initiatives may be needed to ensure that sufficient spectrum is available to ensure that mobile networks can provide effective broadband access? What should be done to release the digital dividend in a timely manner to ensure the rapid development of mobile broadband?
- How can governments/regulators ensure that consumers are given accurate information about actual broadband speeds? Will the absence of certain speed levels preclude certain applications and thus competition in specific sectors (*e.g.* streaming video)?
- In a converged environment with competing and/or complimentary infrastructure platforms (FTTH, FTTN, FTTB, cable television, 4G wireless), how should policy makers determine where to focus regulatory interventions to encourage competition? How should the competition between infrastructure platforms or applications and content service providers be managed? What regulatory options could be used to encourage competition? Should regulatory interventions to encourage development of competition differ based upon geographic size, population size, or population density? How could regulators achieve policy objectives where competition is insufficient to do so alone, or while inadequate competition exists?
- What are the funding options and models to support high-speed networks in remote areas – general taxation, broadband tax universal service fund, role of community initiatives, or a universal service obligation?
- Are existing broadband metrics adequate to achieve a more comprehensive understanding of the factors that affect development of broadband networks? What new set of metrics are required? Should the available broadband bandwidth be measured?

### Role of Broadband in developing the Internet Economy

Broadband has provided an increasingly dynamic platform for innovation and improved services in the Internet Economy. As a platform, broadband has facilitated significant changes in economic and social activity, as has stimulating the creation of new opportunities across the OECD area. It increasingly affects how people communicate, work and play – essential to their daily lives in areas such as health, education and employment. Broadband can also contribute to provide access to public sector information, and facilitate citizen participation in decision-making. At the same time it must be recognised that there is a transitional period in the take-up of new technologies, applications and services. Consumers and users that are inexperienced in using broadband services need to be made aware of both the risks and the beneficial effects of new technologies so that they may adjust to, and benefit from, new services and applications. Policy-makers, alternatively, must be aware that more experienced users will seek out leading-edge technologies and expect to have access to a network that is suitable for supporting these activities.




Broadband Internet has provided the means to restructure business processes creating the means for improving efficiency in production and distribution. Innovation has also provided new growth opportunities for start-ups by drastically reducing market entry barriers, as well as for many small and medium-sized enterprises that use the Internet to have a greater geographical market reach. The opportunities provided by improved communications have been extensive in lowering the cost of access to information, providing users access to a much wider range of content and changing the way content is created and consumed. Its use has also served to open up global markets and assist OECD countries to more effectively compete in these markets. Some innovative technologies however while creating new markets, have also posed major challenges to legitimate commercial interests, and policymakers face competing goals of seeking to enable new business models without undermining the ability of content owners to effectively monetize their assets. Ultimately, the sustainability of this platform, which depends on creative content, also requires appropriate protection of intellectual property, mechanisms for which countries are struggling to establish. In addition, the vigorous protection and enforcement by governments of fundamental rights implicated by the greater access to content on the Internet, including with respect to personal data, cybersecurity, child protection, intellectual property rights, consumer protection and other issues, will play a vital role in spurring innovation and further developing the global information economy.

It is necessary to better document the changes that have taken place resulting from broadband developments and assess their impact on the economy as a whole. Improved measurement will allow countries which have perhaps not taken full advantage of broadband technologies to better assess where their strengths and relative weaknesses are for more informed and effective policy making.

If the new capabilities of high-speed networks are to be effectively utilised it is important to underpin the “demand side”. There needs to be policies supporting research and development that take advantage and build on the new infrastructure to meet challenges in areas from the environment to aging societies, as well as creating new opportunities for sustainable growth and employment.

Governments are well placed to contribute in that they usually play a large role in sectors such as science, education, health, electricity and transportation. High-speed broadband technologies are likely to continue to be essential to further enhance tools for science in high performance computing, open access to scientific information and data, and remote scientific collaboration. The use of high-speed broadband technologies to support health and education services can provide significant savings to governments, improve existing services to users, and provide new innovative services. Similarly, developing smart electricity grids using high-speed broadband networks can help users reduce energy costs, while addressing public policy environmental objectives. The development of smart transport networks, as well, can have large benefits for society while increasing efficiencies in the provision of services.

Ensuring the effective use of new communication infrastructure requires co-ordination across a range of government activities, organisations and the private sector. The potential outcome and externalities can provide large benefits to economies and societies while improving performance in these sectors by, for example, providing patients better care at home and especially those in rural and remote areas; allowing workers to have more flexibility in where and when they work, resulting in reduced rush hour traffic, better ways to combine work and private lives and higher productivity; providing students with access to high quality education on line, offsetting some of the pressures on school systems and teacher shortages; allowing energy networks to better adapt to and co-ordinate the supply and demand of energy; and reducing information technology costs for companies by allowing them to move their servers to professional data centres and use “cloud” services. For many of these efficiencies to be realised, however, as noted above, a precondition is effective intellectual property rights, as well as a range of other factors including competition, consumer protection, freedom of expression and other essential rights.




It is clear that a range of applications and services will be the drivers for the deployment of high-speed networks and that all stakeholders have key roles in seizing the benefits they enable. It is equally clear that this proliferation of new innovations and services poses serious challenges to privacy, particularly when applied to those lacking in digital literacy. New solutions may also emerge giving individuals greater ability to manage their sharing of personal data online. All stakeholders have key roles in ensuring such concerns are addressed.

#### *Issues for discussion:*

- What impact is broadband usage having on science, innovation, economic growth and social development?
- What steps can or should be taken by countries and other stakeholders to enhance this impact?
- How much speed is needed to support applications (*e.g.* e-science, e-government, e-health, smart transport networks, smart electricity grids, telework) and the economy (*e.g.* e-commerce, cloud computing, new business models that deliver legitimate copyright and trade mark protected goods and services) and should governments act in this area and how? What are the incremental benefits of increasing broadband upload and download speeds?
- Are existing metrics adequate to assess the macroeconomic impact of the Internet, particularly via the availability and adoption of broadband services? What new metrics may best help policymakers gauge macroeconomic impacts?
- What services or applications are the main drivers for the deployment of high-speed networks and in what areas (households, SMEs public institutions, etc.?)
- Should governments use their leverage and investment in science, education, health, energy and transport to obtain efficiencies from broadband networks while at the same time stimulating investment in these networks, and if so, how?
- How important will the standardisation of equipment, connectors and platforms be in developing a vibrant Internet economy? Will such standardisation help or hamper innovation?

#### **Balancing policy goals to strengthen growth**

The Internet has been highly beneficial to economies and society because it has been based on an open platform stimulating new innovations, promoting new services and applications and encouraging usage. This same openness provides an opportunity for some to take advantage of the Internet for illicit or illegal practices, to ignore privacy, to encourage copyright piracy and trademark counterfeiting, to undertake fraudulent activities and practices which cause harm to users and networks as well as rightholders. Policy reaction to these developments includes industry initiatives, co-regulatory agreements between industry and government, law and regulation. There are concerns that regulation in some markets is becoming excessive and overly prescriptive, may not be proportional to the issues being addressed, or have been structured in ways that may have unintended consequences, for example, on the openness of the Internet. On the other hand, the persistence of widespread infringement also creates concerns that intellectual property protection and enforcement, critical to many forms of creativity and innovation, is simply inadequate in its current form and requires further development if this platform is to be sustainable for all legitimate participants. It is important that governments actively consider the effects of any policy so as to avoid those that undermine openness or dynamism of the Internet economy, beneficial to all participants. Maintaining trust in the Internet economy and confidence in the stability of the policies are other important variables to consider in this regard.



Internet intermediaries, like other stakeholders, can play an important role in promoting openness and trust, and supporting mechanisms to deter illegal activity, fraud and misleading and unfair practices conducted over their networks and services. These intermediaries operate the platforms that allow other parties to interact and, while they may not have a direct interest in the transactions between parties, they have an interest to ensure that their platforms are trusted by their users. Such platforms cover a wide range of activities, including e-commerce, content production, data aggregation and dissemination, advertising, communication, open government and social cohesion. It is important to build trust in platforms and address issues that negatively affect trust on platforms, on a lawful and voluntary basis. Policies in that respect should be clear and made available to users.

Those intermediaries that provide connectivity (*e.g.* Internet service providers) to the Internet are sometimes viewed as potential gatekeepers, accountable for content and the behaviour of their customers, but sometimes similar to “common carriers” (*e.g.* public telecommunication operators) which have traditionally functioned as a conduit, neither concerned, let alone liable, for content transported over their networks. With respect to intellectual property rights, many countries have established mechanisms that balance a limitation on liability with a level of accountability (a limited “safe harbour”). The role of these intermediaries in assisting the implementation of other public policy objectives (*i.e.* apart from copyright) and in protecting users and societal interests needs further clarification. As with copyright, these intermediaries require greater certainty with respect to their legal responsibilities and obligations in order to operate effectively and efficiently. To protect innovation and the free flow of information, consideration could be given to establish clear and reasonable limits on liability with appropriate conditions for the third-party content that Internet intermediaries transmit or host. Conditions for these limits on liability could create legal incentives and a clear legal framework for intermediaries to co-operate with stakeholders to address and deter illegal activity that also provide users with appropriate safeguards. Limitations on liability should not preclude convening stakeholders in a transparent, multi-stakeholder process to help identify the appropriate circumstances under which stakeholders take steps to protect others’ rights or reduce illegal content, educate users, assist rights holders in enforcing their rights or reduce illegal content.

The challenge to ensure the development of trust in platforms is national as well as transborder and covers a range of issues, including those dealing with cloud computing, e-commerce, users and security.

#### *Issues for discussion:*

- To what extent, if any, should the Internet intermediaries, which operate Internet platforms, be responsible for their own conduct and separately, the conduct of parties using the platform? What is the necessary legislative structure needed to hold all players in the Internet ecosystem, including Internet intermediaries, responsible for certain conduct under applicable laws? What are the consequences, if any, of policies that impose responsibility on intermediaries for on line innovation and the free flow of information?
- Is regional control of access to legal content (usually determined by the IP address of the content requester), namely, a traditional regional approach to IPR still appropriate for a globally connected market?
- In which areas do Internet intermediaries have incentives to voluntarily address concerns about undesirable or harmful conduct, even in the absence of legal responsibility? What positive or negative effects are such voluntary actions having? And what decisions or implementation of industry codes have been successful so far?


- What are the appropriate approaches for possible limitations in liability that could be established for intermediaries, realising that such limitations may differ, depending on the issue (e.g. privacy, child pornography, intellectual property)?
- Economic activity on the Internet has yet to develop effectively across borders. What steps can be taken to open international markets more effectively for e-commerce? What steps can be taken to improve trust internationally?
- How can the challenge of interoperable, cross-border cloud computing services be addressed?
- How can national cybersecurity strategies be made coherent with economic and social policies to both protect the society and advance innovation, growth and fundamental values?
- How can research and development on novel security systems, capable of dealing with the increasingly high complexity of ICT networks, information systems and applications, be fostered?
- What are the respective roles of ISPs and governments in enhancing the security of the Internet, e.g. for reducing the botnet threat?
- What steps can be taken to improve global co-operation in improving trust and enhancing security, especially among enforcement authorities?
- How can governments best ensure proportionality, fair process and fundamental rights are preserved in pursuing Internet-related policy objectives?
- Which new metrics are needed to inform policy decisions to strengthen growth?

### Policy making principles for an open Internet

The Seoul Ministerial Declaration on the Future of the Internet Economy had, as one of its primary focuses, ensuring the efficiency and effective use of information by business, consumers and government. An open Internet is essential both to this task and as a platform to build the innovation needed for future economic and social development.

The Internet's openness, global reach and the fact that it provides the means to disseminate information rapidly and at low cost have helped make it an important instrument for innovation. The relationship between the Internet and innovation has in fact been symbiotic. For example, the rapid increase in Internet users and the creation and availability of online content, services and applications provided incentives to develop better platforms, and provide higher capacities, to access the Internet. These developments provided the stimulus to shift from dial-up access to ADSL and to fibre networks as well as the incentives to develop high-speed wireless networks. Network effects have been important in increasing the value of the Internet to users and providing a further impetus to innovation. Network neutrality has been viewed as important in this context in a number of countries and a number of countries have developed policies in this area, although there is no consensus on this issue across the OECD. New business models have developed to foster the dissemination of legitimate goods and services that rely on copyright and trademark protection. The Internet, and the availability of ubiquitous access in many countries, has led to a process of change in many economic sectors with increased benefits to users and businesses engaged in legitimate commerce in both the hard goods and online environments.

A key issue for policy makers is how public policy can best support continued innovation and creativity in the Internet economy. Concerns have been raised that the openness of the Internet is being reduced over time through some regulatory and policy actions which either take a narrow view of Internet developments or do not take a sufficiently balanced and proportionate approach. If this occurs it



could limit spillovers from innovation and have a negative impact on openness. In turn, such actions may increase costs for individuals and firms and reduce incentives to innovate.

In trying to preserve the openness of the Internet in coming years it is important to have a common perspective and use common high-level principles when taking policy actions to ensure global consistency. Such consistency is important because the Internet has the potential to provide a global market place and, through e-commerce, is providing a new trading platform for businesses and for consumers.

Obstacles to openness can arise because governments place restrictions which affect businesses, users or consumers, or because platform providers, intermediaries or other stakeholders impose obstacles to access or flows of information. In this context access to network resources, interoperability between platforms, ensuring market competition and open access can be important.

In this context - and in light of the global character of the Internet - policy principles regarding the regulatory environment and technical measures applied in relation to consumers, intermediaries and other stakeholders in the case of Internet infringements become central aspects of ensuring the openness of the Internet and efficient actions against infringements. Obstacles to the openness of the Internet - arising from inefficient or inconsistent national and international policy, regulatory and technical measures applied when addressing Internet infringements - may be minimized by a higher degree of international co-operation. This may also secure a higher degree of regulatory predictability for consumers, intermediaries and other stakeholders.

The multi-stakeholder environment which has played a large part in driving the Internet and its open framework has also been important in ensuring accountability and transparency. It has played an important role in putting forward principles which have helped in promoting benefits and mitigating potential harm to an open Internet economy.

#### *Issues for discussion:*

- Is there a need to act in order to ensure the continued openness of the Internet?
- How can the Internet's multi-stakeholder environment be best preserved?
- What public policies could be adopted to enhance the potential benefits of open access to information and data? Which metrics should be adopted to monitor such policies?
- A number of countries are considering network neutrality in relation to an open Internet. What are the main considerations in this area?
- Which particular policy areas would benefit most from voluntary codes of conduct?
- How can countries move forward to ensure more consistent international principles aimed at an open Internet economy? What role can the OECD play in this area?