

COLLECTION OF GSR BEST PRACTICE GUIDELINES

2003 - 2013

COLLECTION OF GSR BEST PRACTICE GUIDELINES

Adopted by the global regulatory community during
the annual Global Symposium for Regulators
(GSR) organized by the Telecommunication
Development Bureau (BDT) of the International
Telecommunication Union (ITU)

2003 - 2013

“Regulating the ever-changing ICT sector is like aiming at a moving target. Developing and using best practices is the best way to fast-track our efforts to adapting to change and embracing new technologies to foster development and business.”

For more than a decade, telecoms/ICT regulators have relentlessly contributed to identifying regulatory best practice guidelines to serve as innovative and smart regulatory tools to respond to the changing ICT environment.

GSR provides an unparalleled platform for sharing regulatory experiences and best practices. As the initiator and convener of this unique global dialogue that brings together heads of national telecom/ICT regulatory authorities worldwide, ITU is proud to see the many innovative contributions received year after year, which have helped move ICTs to the forefront of the policy agenda and recognize broadband as a powerful catalyst for social and economic inclusion. Efforts throughout the world to spearhead innovation and investment and protect consumer rights through the adoption of targeted ICT regulation will contribute to making the dream of a ‘digital world for all’ a reality.

GSR best practice guidelines have served throughout the years to increasing the body of regulatory knowledge and enable policy-makers and regulators to make sound and informed decisions. The topical and emerging issues addressed range from universal access to next-generation-networks migration, spectrum management, convergence, open access, cloud services, and from the evolving roles of both regulation and the regulators to now focusing on consumer protection in a digital world, for which this year’s consultation is in its final stage.

I wish to thank all regulators who have contributed since 2003 to making the GSR best practice guidelines a key reference in the sector.



Dr Hamadoun I. Touré,
Secretary-General,
International
Telecommunication Union



Mr Brahim Sanou,
Director,
Telecommunication
Development Bureau

GSR'03	Universal Access Regulatory Best Practice Guidelines	6
GSR'04	Best Practice Guidelines for the Promotion of Low Cost Broadband and Internet Connectivity.....	9
GSR'05	Best Practice Guidelines for Spectrum Management to Promote Broadband Access.....	12
GSR'07	Best Practice Guidelines for Next Generation Networks (NGNs) Migration	17
GSR'08	Best Practice Guidelines on innovative infrastructure sharing strategies to promote affordable access for all	23
GSR'09	Best Practice Guidelines on innovative regulatory approaches in a converged world to strengthen the foundation of a global Information Society	27
GSR'10	Best Practice Guidelines for Enabling Open Access	32
GSR'11	Best Practice Guidelines on regulatory approaches to advance the deployment of broadband, encourage innovation and enable digital inclusion for all	37
GSR'12	Best Practice Guidelines on regulatory approaches to foster access to digital opportunities through cloud services	44
GSR'13	Best practice guidelines on the evolving roles of both regulation and the regulators in a digital environment.....	48
	List of GSR chairmen.....	53

TABLE OF CONTENTS

03 GSR

UNIVERSAL ACCESS REGULATORY BEST PRACTICE GUIDELINES

We, the regulators participating in the 2003 Global Symposium for Regulators, have identified and propose the following best practice guidelines to achieving universal access to information and communication technology (ICT) services.

A. AN ENABLING REGULATORY ENVIRONMENT: THE ROLE OF GOVERNMENTS AND REGULATORS

1. The success of any universal access/service policy is dependent upon political support at the highest level that recognizes the role of ICTs as a tool for development.
2. It is essential that Regulators exist or be established where they do not yet exist, and that their key role in implementing universal access policies and promoting competition be recognized and reinforced.
3. A series of policy and regulatory reform measures can be taken to achieve universal access to ICTs. These include:
 - a. Formulating a national policy that identifies appropriate and realistic universal access/service objectives that take into account the differences between universal access—public access to ICTs—and universal service—household or private access to ICTs
 - b. Including all citizens, regardless of gender, ethnicity, socio-economic level or geographic location, in national universal access/service objectives.
 - c. Reviewing universal access/service policies, regulations and practices periodically to adapt to the evolving nature of ICT services and the needs of end users.

- d. Conducting periodic public consultations to the extent possible with stakeholders to identify their needs and modify accordingly universal access policies, regulation and practices.
 - e. Designing universal access policies, regulations and practices in order to create incentives for the private sector to extend universal access to communications services.
 - f. Establishing a fair and transparent telecommunication regulatory framework that promotes universal access to ICTs.
 - g. Adopting technologically neutral licensing practices enabling service providers to use the most cost-effective technology to provide services for end users.
 - h. Adopting a framework of interconnection rates linked to costs.
 - i. Reducing regulatory burdens to lower the costs of providing services to end users.
 - j. Developing an effective regulatory body responsible for implementing policies directed towards assuring the best quality reliable services at the most affordable prices that meet the needs of consumers—existing and future.
 - k. Promoting competition in the provision of a full range of ICT services to increase access, affordability, availability and use of ICTs.
4. Countries can use regulatory reform as the first step in achieving universal access, recognizing that further steps may be necessary to achieve ubiquitous access to ICTs, e.g., in rural areas or to users with special needs.
 5. Appropriate licensing schemes for rural service providers could be granted to meet the needs of un-served and under-served areas.

B. ACCESS TO INFORMATION AND COMMUNICATION INFRASTRUCTURES

6. The lessons learned from the initial experiences developing countries have achieved with mobile cellular services can be applied to a broader range of ICT services to foster universal access. These lessons include providing services in a competitive framework, using new technologies that offer both innovative services and affordable pricing options (e.g., pay as you go options such as pre paid cards) to a wide range of end users.
7. Other measures to promote affordable ICT equipment could include national manufacturing of ICT equipment, reduced customs tariffs and duties, and end-user loans to foster affordability of ICT equipment.
8. A full range of public access options can be developed, including the creation of public telecentres.



9. Local input (including the content useful for local populations) into projects increases their long-term financial sustainability.
10. Educating local people on the benefits of ICTs and their use increases their long-term financial sustainability

C. GUIDELINES IN REGARD TO FINANCE AND MANAGEMENT OF UNIVERSAL ACCESS POLICY

11. Universal service funds can be viewed as an option that complements regulatory reform and developed as a mechanism within a broader market-oriented approach to achieving universal access.
12. Universal service funds can be financed by a broad range of market players, managed by neutral bodies such as regulators, and be used to kick-start public access projects that meet the needs of the local community.
13. Governments may consider a full range of other financing mechanisms, including tax incentives for ICT providers and end users.
14. Competitive minimum subsidy auctions could be used, as an option, to reduce the amount of financing necessary for public access projects financed by a universal service fund.
15. Public access projects can be designed to achieve long-term financial self-sustainability, especially where consideration is given to innovative low-cost technologies.

GSR 04

BEST PRACTICE GUIDELINES FOR THE PROMOTION OF LOW COST BROADBAND AND INTERNET CONNECTIVITY

We, the regulators participating in the 2004 Global Symposium for Regulators, have identified and proposed best practice guidelines to achieve low cost broadband and Internet connectivity. Our goal is the creation of national regulatory frameworks that are flexible and enable competition between various service providers using multiple transport and technology options. We believe the best practices outlined below will help bring social and economic benefits to the world's citizens.

AN ENABLING REGULATORY REGIME THAT ENCOURAGES BROADBAND DEPLOYMENT AND INTERNET CONNECTIVITY

1. We encourage political support at the highest government levels with such support expressed in national or regional policy goals. These include an effective regulator separated from the operator and insulated from political interference, a transparent regulatory process, and adoption and enforcement of clear rules.
2. We believe that competition in as many areas of the value chain as possible provides the strongest basis for ensuring maximum innovation in products and prices and for driving efficiency.
3. We encourage regulators to set policies to stimulate competition among various technologies and industry segments that will lead to the development and deployment of broadband capacity. This includes addressing barriers or bottlenecks that may exist with regard to access to essential facilities on a non-discriminatory basis.

4. We believe that the primary objective of regulation should be to secure fair and reasonable access for competitive broadband services, including Internet connectivity.
5. We encourage the maintenance of transparent, non-discriminatory market policies in order to attract investment.
6. We encourage regulators to adopt policies that are technology neutral and do not favor one technology over another.
7. We encourage regulators to take into consideration the convergence of platforms and services and that they regularly reassess regulatory regimes to ensure consistency and to eliminate unfair market advantages or unnecessary regulatory burdens.
8. We encourage regulators to allocate adequate spectrum to facilitate the use of modern, cost effective broadband radiocommunications technologies. We further encourage innovative approaches to managing the spectrum resource such as the ability to share spectrum or allocating on a license-exempt non-interference basis.
9. We urge regulators to conduct periodic public consultations with stakeholders to inform the regulatory decision-making process.
10. We recommend that regulators carefully consider how to minimize licensing hurdles.
11. We encourage the development of a regulatory framework that permits ISPs and broadband providers to set up their own last mile.
12. We encourage regulators to provide a clear regulatory strategy for the private sector in order to reduce uncertainty and risk, and remove any disincentives to investment.

INNOVATIVE REGULATORY POLICIES MUST BE DEVELOPED TO PROMOTE UNIVERSAL ACCESS

1. We recommend that the promotion of access to low cost broadband interconnectivity should be integrated from “grass-roots” efforts to identify local needs all the way through the “tree-tops” of international law. Governments, business and non-governmental organizations should be involved.
2. We recommend that regulators adopt regulatory frameworks that support applications such as e-education and e-government.
3. We encourage each country to adopt policies to increase access to the Internet and broadband services based on their own market structure and that such policies reflect diversity in culture, language and social interests.
4. We encourage regulators to work with stakeholders to expand coverage and use of broadband through multi-stakeholder

partnerships. In addition, complementary government initiatives that promote financially sustainable programs may also be appropriate, especially in filling in the market gap that may exist in some countries.

5. We encourage regulators to adopt regulatory regimes that facilitate the use of all transport mechanisms, whether wireline, power line, cable, wireless, including wi-fi, or satellite.
6. We encourage regulators to explore programs that encourage public access to broadband and Internet services to schools, libraries and other community centers.
7. We encourage regulators to implement harmonized spectrum allocations consistent with the outcome of ITU Radiocommunication Conference process and each country's national interest. Participation in this well-established framework will facilitate low-cost deployment of equipment internationally and promote low-cost broadband and Internet connectivity through economies of scale and competition among broadband vendors and service providers.

BROADBAND IS AN ENABLER

1. Regulation should be directed at improving the long term interests of citizens. Broadband can contribute to this by improving and enabling education, information, and increased efficiency. It can reduce costs, overcome distance, open up markets, enhance understanding and create employment.
2. We encourage regulators to educate and inform consumers about the services that are available to them and how to utilize them so that the entire population benefits.
3. We urge regulators to work with other government entities, industry, consumer groups, and other stakeholders to ensure consumers have access to the information they need about broadband and Internet services.

05



BEST PRACTICE GUIDELINES FOR SPECTRUM MANAGEMENT TO PROMOTE BROADBAND ACCESS

INTRODUCTION

Wireless broadband technologies hold promise for all countries seeking to ensure the availability of access to information communication technologies (ICT) and the creation of the Information Society. The ICT sector can improve standards of living and quality of life and boost productivity and competitiveness in the global and national economies. Broadband is an essential component of ICT. It is bringing new multimedia services to consumers for work and leisure, making them better-informed and more involved citizens and promoting economic and societal progress. With the advent of digital convergence and the Internet, wireless broadband offers the prospect of faster rollout of services, portability and mobility, making a reality of the vision of 'any content, any time, any place, anywhere' in the global information society. Wireless broadband technologies are set to close the broadband divide that exists between developing and developed countries. Wireless broadband, of course, will also require more spectrum.

Spectrum is a scarce resource that needs to be managed effectively and efficiently in order to derive maximum economic and social benefit, including encouraging growth and rapid deployment of infrastructure and services for consumers. This requires innovative approaches to managing the spectrum dynamically to succeed in making spectrum available for broadband and other new services. As recognized by the 2004 Global Symposium for Regulators (GSR), within the spirit of transparency, objectivity, non-discrimination, and with the goal of the most efficient spectrum use, the onus is on legislators and regulators to adjust, alter or reform their regulatory codes, wherever possible, to dismantle unnecessary rules which today may adversely affect the operation of wireless technologies and systems. A new

set of spectrum management principles and practices, within regulators' respective mandate, will enable countries to harness the full potential of wireless broadband technologies. However, this cannot be done in isolation. A broad approach, including other regulatory instruments, as outlined in the GSR 2003 and 2004 Best Practice Guidelines to promote universal access, and low cost broadband, are necessary.*

We, the regulators participating in the 2005 Global Symposium for Regulators, have identified the following set of best practice guidelines for spectrum management to promote broadband access:

1. Facilitate deployment of innovative broadband technologies.

Regulators are encouraged to adopt policies to promote innovative services and technologies. Such policies may include:

- Managing spectrum in the public interest.
- Promoting innovation and the introduction of new radio applications and technologies.
- Reducing or removing unnecessary restrictions on spectrum use.
- Adopting harmonized frequency plans defined by ITU-R recommendation in order to facilitate the implementation of competition.
- Embracing the principle of minimum necessary regulation, where possible, to reduce or eliminate regulatory barriers to spectrum access, including simplified licence and authorization procedures for the use of spectrum resources
- Allocating frequencies in a manner to facilitate entry into the market of new competitors.
- Ensuring that broadband wireless operators have as wide a choice as possible of the spectrum they may access, and releasing spectrum to the market as soon as possible.

2. Promote transparency: Regulators are encouraged to adopt transparent and non-discriminatory spectrum management policies to ensure adequate availability of spectrum, provide regulatory certainty and to promote investment. These policies may include:

- Carrying out public consultations on spectrum management policies and procedures to allow interested parties to participate in the decision-making process, such as:
 - public consultations before changing national frequency allocation plans; and
 - public consultations before changing national frequency allocation plans; and service providers.
- Implementing a stable decision-making process that provides certainty that the grant of radio spectrum is done in accordance with principles

* See <http://www.itu.int/ITU-D/treg/Events/Seminars/2003/GSR/WSIS-Statement.html> and <http://www.itu.int/ITU-D/treg/Events/Seminars/2004/GSR04/consultation.html>

of openness, transparency, objectivity--based on a clear and publicly available set of criterion which is published on the regulator's website--and non-discrimination and that such grants will not be changed by the regulator without good cause.

- Publication of forecasts of spectrum usage and allocation needs, in particular on the regulator's website.
- Publication of frequency allocation plans, including frequencies available for wireless broadband access, in particular on the regulator's website.
- Publication of a web-based register that gives an overview of assigned spectrum rights, vacant spectrum, and licence-free spectrum, balancing any concerns for confidential business information or public security.
- Clearly defining and publishing radio frequency spectrum users' rights and obligations, including on the regulator's website.
- Clearly defining and publishing licensing and authorization rules and procedures, including on the regulator's website.
- Publication of legal requirements for imported equipment and foreign investment, in particular on the relevant government agency website.

3. Embrace technology neutrality. To maximize innovation, create conditions for the development of broadband services, reduce investment risks and stimulate competition among different technologies, regulators can give industry the freedom and flexibility to deploy their choice of technologies and decide on the most appropriate technology in their commercial interest rather than regulators specifying the types of technologies to be deployed, or making spectrum available for a preferred broadband application, taking into consideration the need for and cost of interoperable platforms.

- Regulators can take into consideration technological convergence, facilitating spectrum use for both fixed and mobile services, ensuring that similar services are not subject to disparate regulatory treatment.
- Regulators can provide technical guidelines on ways to mitigate inter-operator interference.
- Regulators can ensure that bands are not allocated for the exclusive use of particular services and that spectrum allocations are free of technology and service constraints as far as possible.

4. Adopt flexible use measures: Regulators are encouraged to adopt flexible measures for the use of spectrum for wireless broadband services. Such measures may include:

- Minimizing barriers to entry and providing incentives for small market players by allowing broadband suppliers to begin operations on a small scale at very low cost, without imposing onerous rollout and coverage conditions, to enable small market players to gain experience in

broadband provision and to test market demand for various broadband services.

- Recognizing that wireless broadband services may be used for both commercial and non-commercial uses (e.g., for community initiatives or public and social purposes) and that broadband wireless spectrum can be allocated for non-commercial uses with lower regulatory burdens, such as reduced, minimal or no spectrum fees; regulators can also allocate and assign spectrum for community or non-commercial use of broadband wireless services.
 - Recognizing through flexible licensing mechanisms that wireless broadband technologies can provide a full range of converged services.
 - Adopting lighter regulatory approaches in rural and less congested areas, such as flexible regulation of power levels, the use of specialized antennas, the use of simple authorizations, the use of geographic licensing areas, lower spectrum fees and secondary markets in rural areas.
 - Recognizing that in markets where spectrum scarcity is an issue, the introduction of mechanisms such as secondary markets can in some cases foster innovation and free-up spectrum for broadband use.
 - Recognizing the role that both non-licensed (or licence-exempt) and licensed spectrum can play in the promotion of broadband services, balancing the desire to foster innovation with the need to control congestion and interference. One measure that could be envisaged is, for example, to allow small operators to start operations using licence-exempt spectrum, and then moved to licensed spectrum when the business case is proved.
 - The promotion of shared-use bands, as long as interference is controlled. Spectrum sharing can be implemented on the basis of geography, time or frequency separation.
 - Developing strategies and implement mechanisms for clearing bands for new services as appropriate.
 - Recognizing the need for cost-effective backhaul infrastructure from rural and semi-rural areas, regulators can consider the use of point-to-point links within other bands, in line with national frequency plans, including any bands for broadband wireless access.
- 5. Ensure affordability.** Regulators can apply reasonable spectrum fees for wireless broadband technologies to foster the provision of innovative broadband services at affordable prices, and minimize unreasonable costs that are barriers to entry. Higher costs of access to spectrum further reduces the economic viability in rural and under-served areas. Auctions and tender processes can also be managed to meet these goals.
- 6. Optimize spectrum availability on a timely basis.** Regulators are encouraged to provide effective and timely spectrum use and equipment

authorizations to facilitate the deployment and interoperability of infrastructure for wireless broadband networks. Regulators are also encouraged to make all available spectrum bands for offer, subject to overall national ICT master-plans, in order that prices are not pushed up due to restrictive supply and limited amount of spectrum made available and so that opportunities to use new and emerging technologies can be accommodated in a timely manner. In addition, special research or test authorizations could be issued to promote the development of innovative wireless technologies.

7. **Manage spectrum efficiently.** Spectrum planning is necessary to achieve efficient and effective spectrum management on both a short-term and long-term basis. Spectrum can be allocated in an economic and efficient manner, and by relying on market forces, economic incentives and technical innovations. Regulators can promote advanced spectrum efficient technologies that allow co-existence with other radio communications services, using interference mitigation techniques, for example, dynamic frequency selection. Regulators can provide swift and effective enforcement of spectrum management policies and regulations.
8. **Ensure a level playing field.** To prevent spectrum hoarding, especially by incumbents, regulators can set a limit on the maximum amount of spectrum that each operator can obtain.
9. **Harmonize international and regional practices and standards.** Regulators can, as far as practicable, harmonize effective domestic and international spectrum practices and utilize regional and international standards whenever possible, and where appropriate, reflect them in national standards, balancing harmonization goals with flexibility measures. This could include harmonization of spectrum for broadband wireless access that could generate economies of scale in the production and manufacture of equipment and network infrastructure. Likewise, global harmonization of standards to ensure interoperability between different vendor's user terminals and network equipment can be promoted. The use of open, interoperable, non-discriminatory and demand-driven standards meets the needs of users and consumers. Coordination agreements with neighbors, either on a bilateral or multilateral basis, can hasten licensing and facilitate network planning.
10. **Adopt a broad approach to promote broadband access.** Spectrum management alone is inadequate to promote wireless broadband access. A broad approach, including other regulatory instruments; such as effective competitive safeguards, open access to infrastructure, universal access/service measures, the promotion of supply and demand, licensing, roll-out and market entry measures; the introduction of data security and users' rights, where appropriate; encouraging the lowering or removal of import duties on wireless broadband equipment; as well as development of backbone and distribution networks is necessary.



07

BEST PRACTICE GUIDELINES FOR NEXT GENERATION NETWORKS (NGNs) MIGRATION

We, the regulators participating in the 2007 Global Symposium for Regulators, have identified and proposed best practice guidelines for the migration to NGNs. Our goal is to promote regulatory frameworks that foster innovation, investment and affordable access to NGNs and that facilitate the migration to NGNs. We believe the best practices outlined below can contribute to reaching this goal and deliver real benefits to citizens and consumers, including innovative new services and technologies.

AN ENABLING REGULATORY REGIME THAT FOSTERS INNOVATION, INVESTMENT AND AFFORDABLE ACCESS TO NGNS AND FACILITATES MIGRATION TO NGNS

1. We encourage political support for creating a forward-looking and enabling environment for the development of NGNs at the highest government levels and expressed in national or regional policy goals.
2. We encourage the establishment of an effective regulator separated from the operator. Regulators are also encouraged to enhance their functionality by adopting clear and transparent regulatory processes, including those relating to the adoption and enforcement of rules for the sector.
3. We encourage regulators to adopt a coherent approach to regulating the converged information and communication technology (ICT) sector. One approach could be through the establishing of converged ICT regulatory authorities.
4. We believe that government policy should also promote and enable public/private sector partnerships to support and promote

advancement in affordable and secure NGN infrastructure development, particularly where private investment alone is unlikely to lead to NGN deployment.

5. We encourage regulators to establish forward-looking regulatory regimes and to regularly reassess them in order to remove undue regulatory barriers to competition and innovation as well as to allow the regulatory framework to evolve with the objective of enabling users and providers to migrate to succeeding generations of networks when the market dictates.
6. We believe that regulatory flexibility and technology neutrality is needed to permit technological innovation and to support technical and service evolution and that there should be no undue distortion of competitiveness or of the discipline and efficiency of the market.
7. We encourage regulators to design regulatory frameworks that enable cost-based regulatory charging mechanisms, competitive network provision, and competitive infrastructure builds and to monitor for incidents of NGN network providers/operators restricting service level competition to their own undue advantage which could warrant a regulatory response. Such frameworks should also be aimed at ensuring that NGN network providers and operators maintain incentives for technological and market creativity and innovation.
8. We believe that establishing investment-friendly regulation while maintaining a level playing field and protecting consumer interests is of paramount importance for facilitating NGN deployment.
9. We encourage regulators to keep consumers informed on the transition to NGNs and the new services which may be on offer, in order to provide them with the necessary information to make well-informed choices.
10. We encourage regulators to keep in mind the need to create regulatory certainty for both incumbent and competing/alternative providers, in order not to stifle innovation. We recommend that they balance this goal with that of fostering robust, competitive markets and that contingency plans be in place.
11. We encourage regulators to closely monitor developments of radio access networks in general and the developments of their internal mobile and broadband markets in order to make the necessary policy decision to enable future deployment of systems that will accommodate the seamless transition between fixed and mobile settings in an NGN environment.
12. We believe that promoting diversification of access networks is a policy option and a strategy to promote infrastructure deployment and increase broadband penetration and competition and that promoting diversification of access networks such as wireless and cable television networks is a strategy directed at achieving robust inter-modal competition.

13. We encourage regulators to monitor local, regional and international developments regarding NGN-related issues, such as IP-interconnection, standardization, and numbering (including next-generation identification systems) and, to the extent possible, to participate in such initiatives by attending meetings and providing input and comments into the process. Regulators are also encouraged to implement to the greatest extent possible international best practices regarding NGN-related issues into their respective regulatory frameworks.

INNOVATIVE REGULATORY POLICIES MUST BE DEVELOPED TO FACILITATE NGNS

1. We believe that regarding the evolution of Next-Generation Networks, regulators should carefully analyse and as appropriate define innovative policies both in the short term (relating to, for example, parallel existence of PSTN/IP networks, VoIP services, triple play, etc.) and in the long term (with a more complete NGN environment) analyse issues including:
 - a. the comparison between fixed, mobile & broadcast approaches to NGN deployment and develop convergent approaches to NGN in particular as regards access, interconnection, QoS, security and tariffs
 - b. issues relating to Access and Core technology growth and development
 - c. the co-existence of legacy, hybrid and NGN networks in the interest of consumers
 - d. the changing nature of the relationship between networks, services and applications (including content)
 - e. the emerging new services and the related challenges of maintaining competition and the ability to offer end-to-end innovative services across competitive NGNs
 - f. the interdependence of NGN and the Internet.
 - g. how NGN could be the engine for convergence
 - h. standardization, interconnection and interoperability issues.
 - i. how acceptable levels of Quality of Service can be maintained
 - j. how to ensure universal access through NGN and broadband access
 - k. how NGN services could enhance services to users with special needs
2. We recommend that regulators initiate consultations and promote awareness of NGNs through various regulatory processes and initiatives, including close collaboration with industry and that self-regulatory and co-regulatory measures are considered within such procedures.

3. We recommend that the dialogue between regulators and stakeholders include the full range of NGN issues such as ex ante access obligations to NGNs, IP-interconnection, competition issues, consumer issues including privacy issues, Emergency Telecommunications Services, Accessibility to users with disabilities, quality of service issues, monitoring and lawful interception (LI) compliance issues, authorization issues, numbering, and the universal services implications of IP- based services, particularly voice.
4. In view of protecting the consumer, we encourage regulators to consider applying symmetric regulation to all operators and providers of telephony services, notably in areas such as interoperability, interconnection, quality of service, numbering, portability, security and integrity of the network, information and consumer protection.
5. Competition: In order to create enabling regulation for the transition towards an NGN environment, regulators are also encouraged to analyze issues based on specific market conditions, in particular how best to foster a competitive environment, and what obstacles need to be addressed to sustain competition between incumbent operators and alternative/competitive providers.
6. Authorization:
 - a. We encourage regulators to adopt licensing frameworks which are flexible and technology neutral, recognizing that these attributes are vital for the transition towards an NGN world, characterized by the decoupling of service/application provision from the underlying infrastructure.
 - b. We encourage regulators to simplify procedural requirements to obtain a license by introducing registrations, notifications, and in certain instances, deregulation and to secure rights of way in order to facilitate the roll-out of NGN access networks. This will ultimately allow market players to make use of NGN to access global markets and consumers to benefit from such global competition in the provision of services.
7. Access:
 - a. We believe that regulators may consider promoting competition by ensuring access as to assets that are enduring economic bottlenecks.
 - b. We encourage regulators to carefully analyze whether to promote unbundling of core and access networks or infrastructure sharing among operators.
 - c. We encourage regulators and policy makers to consider promoting the diversification of access networks as a policy option and to consider adopting a strategy to promote infrastructure deployment and increase broadband penetration and competition.

- d. Regulators may, however, also wish to take into consideration the existence of different cost-effective network topologies for both the urban and rural applications.
8. Interconnection and Interoperability:
- a. Recognizing that interconnection is the key to the success of the transition to a new environment, we urge regulators to promote, and as appropriate to design, flexible and accurate interconnection models so as to allow smooth transitioning to NGNs.
 - b. We encourage regulators to analyze the full range of issues relating to the transition to NGN networks, including, for example: the definition of economic or relevant markets, changing interconnection charging models, end-to-end quality as relating to interconnection in an IP environment and data or service interconnection as opposed to voice interconnection.
 - c. We encourage regulators to embrace regulatory initiatives that give rise to new business areas such as interconnection “carrier hotels” in which the “hotelier” offers a venue where telecommunications and network services providers and their customers can place their routers, network and storage equipment in proximity to one another.
 - d. We recognize that in an IP environment the any to any connection of all services is no longer a clear issue and that interoperability of services depends on a large number of technical parameters to be agreed upon between parties, as well as on peering policies and on possible special admission requirements. We encourage regulators to follow and analyze developments and as appropriate, to define regulatory policies concerning mandatory services.
9. Numbering and next-generation identification systems:
- a. We encourage regulators to foresee flexibility in their numbering plans and to consider modifications to numbering policies and regulations to accommodate convergence and the migration towards IP-based NGN services, and to address issues such as whether numbering resources should be assigned for VoIP and whether traditional telephone service operator obligations should be imposed on VoIP providers.
 - b. We believe that given that the ENUM protocol, databases and services are a key element in routing communications in IP interconnection, regulators should closely follow and contribute to developments of different ENUM concepts and encourage the national and regional implementation of these.
10. Universal access:
- a. Experience around the globe has shown that increased competition leads to lower prices and greater service penetration. Technological progress and the right choice of technology can transform a rural customer in a remote area into a profitable customer.

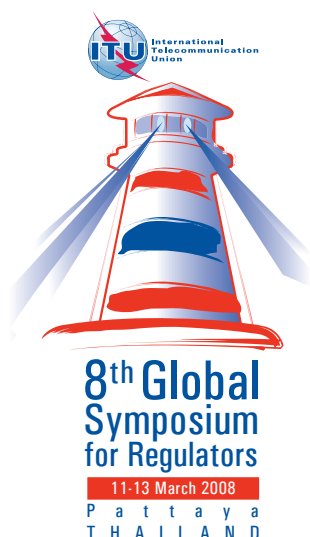
- b. Where specific measures for the promotion of universal access still exist, regulators are encouraged to take into account the separation of network and service provision in an NGN environment and to design competitively neutral universal service policies that strictly define and are applicable only to the areas where the market is not seen to be able to ensure affordability of services, thus emphasizing the implementation of demand side promotion measures as opposed to the supply side subsidization.

11. Quality of service:

- a. We believe that defining appropriate and transparent quality of service requirements can assist carriers in developing economies to provide quality services at affordable costs.
- b. We recommend that regulators carefully analyze the full range of NGN quality of service issues, for example, traffic prioritization and shaping.
- c. We recommend that regulators consider whether to define appropriate parameters and methodologies for QOS measurements, which are applicable to networks supporting both IPv4 and IPv6.
- d. We believe that, when defining appropriate quality of service standards, it is also important to maintain an environment where consumers have the ability to choose services according to their specific needs.

12. Consumer awareness, security and protection:

- a. We believe that regulators should focus on raising awareness of the benefits of NGN for the market and consumers, and at the same time carefully consider issues relating to security and consumer protection (for example personal and data protection, protection of minors, the protection of end-users from the invasion of privacy, as well as e-commerce, law enforcement related issues and access to emergency telecommunications services.)
- b. We believe that the security of communications will become increasingly important in a new IP based communication environment, and therefore encourage regulators to follow developments of security issues, and implement appropriate measures such as, for example consider requiring reports from relevant service providers on security incidents and failures.
- c. We recommend that regulators should also define ways to inform consumers on security and privacy risks in IP/NGN environment and look for ways to increase consumer awareness on protection methods, including, for example, media campaigns and telecommunications fora and seminars.



2008

BEST PRACTICE GUIDELINES ON INNOVATIVE INFRASTRUCTURE SHARING STRATEGIES TO PROMOTE AFFORDABLE ACCESS FOR ALL

Over the last decade, the telecommunication sector worldwide witnessed a first wave of reforms resulting in the establishment of a regulator in the vast majority of countries, introduction of competition in some or all service segments and at least partial privatization of the incumbent operators (among other measures). The result has been unprecedented take-up of mobile voice services in developing countries. However, despite these impressive gains, much of the world's population still remains without access even to voice services, and very few citizens in developing countries have access to multimedia broadband services including Internet. Regulators around the world are considering infrastructure sharing as a tool to promote infrastructure deployment, in particular IP backbones and broadband access networks. Today, a second wave of regulatory reforms is necessary.

We, the regulators participating in the 2008 Global Symposium for Regulators, have identified and proposed best practice guidelines for innovative infrastructure sharing and open access strategies to promote affordable broadband access.

A. PROMOTING AN ENABLING ENVIRONMENT

1. Appropriate Regulatory framework

We recognize the need for an appropriate regulatory framework fostering broadband access including Internet, to enable the development of infrastructure-based competition, in addition to service-based competition, and the emergence of new innovative players at the national level.



Certain sharing options can deliver specific benefits while others could pose risks, in particular by reducing competition, and these need to be carefully balanced in the light of specific national circumstances when designing the most appropriate regulatory strategy.

In doing so, regulators recognize the importance of holding public consultations with all stakeholders on the various strategies and regulations that deal with infrastructure sharing.

2. Competition and investment incentives

We recognize the potential benefits of infrastructure sharing, whether mandatory or optional, in situations where competition and investment incentives are not undermined, bearing in mind the need to safeguard competition and investment incentives. We recognize that offering of shared facilities must not be biased towards any specific service provider or types of services.

Where capital and operating expenditures are likely to be reduced by the joint deployment, management and maintenance of certain facilities (for example, by tower sharing), such sharing can bring about long-term efficiencies, which may in turn enable more investment in innovative products and services and ultimately benefit consumers.

We recognize the importance of ensuring that regulatory policy does not restrict competing market players installing their own independent facilities, and that it promotes open access to international capacity and international gateways (for example, collocation and connection services at submarine cable landing stations).

We believe that the establishment of Internet Exchange Points could also encourage shared and more affordable access to national and international broadband capacity for Internet service providers willing to enter the market.

B. INNOVATIVE REGULATORY STRATEGIES AND POLICIES TO PROMOTE INFRASTRUCTURE SHARING

We also recognize that successful infrastructure sharing may be facilitated by the introduction of regulatory obligations and regulatory policies that include:

1. Reasonable terms and conditions

It is important that implementation of sharing takes into account the necessity to protect the value of existing investment in infrastructures and services. However, price and non-price terms and conditions should not act as an artificial barrier to sharing.

2. Pricing

Pricing for shared facilities should provide the right economic signals to market players, assisting them in making reasonable and commercial “build-

or-buy” decisions (i.e., is it more commercially reasonable to self provision facilities or to lease existing ones). At the same time pricing should provide for the right incentives for investments in infrastructure (in a form of reasonable return on investment), but should not be used as an artificial barrier to entry for new market players. Commercially negotiated pricing should prevail, except where market power exists.

3. Efficient use of resources

Non-replicable resources such as towers, ducts and rights of way can be shared for installations that serve a similar purpose, which allows for optimal use and can be offered on a first-come first- served basis subject to commercial agreements under fair pricing conditions.

4. Scarce resources

Shared-use bands could be promoted as long as interference is controlled. Spectrum sharing can be implemented on the basis of geography, time or frequency separation.

5. Licensing

Regulators could consider licensing or authorizing market players that only provide passive network elements, but which do not compete for end-users, such as mobile tower companies, public utilities companies with rights of way access, and fibre backhaul providers.

6. Conditions for sharing and interconnection

Regulators recognize that infrastructure sharing can only take place on a neutral, transparent, fair and non discriminatory basis and that interconnection frameworks can ensure that all licensed operators are granted the right to interconnect as well as encourage the sharing of essential facilities and guarantee that network security and quality of service are not compromised.

7. Establishing an infrastructure sharing one-stop-shop

Establishing a one-stop-shop would facilitate the coordination of trenching and ducting works between telecommunications service providers as well as between telecommunications service providers and those of other utilities.

Regulators recognize the key role local authorities could play in fostering the deployment of broadband access and development of competition and the importance of close cooperation to simplify administrative proceedings and ensure timely response to requests for infrastructure sharing.

8. Improving transparency and information sharing

Regulators recognize the need for transparent processes to facilitate infrastructure sharing, and market players need to know what is available for sharing under clearly established terms and conditions, in order to avoid unfair actions. Regulators could require publication on websites of the details of



existing as well as future infrastructure installations available for sharing by other service providers, such as the availability of space in existing ducts, planned deployment or upgrading works and interconnection.

9. Dispute resolution mechanism

We believe that regulators should introduce necessary enforcement tools to ensure compliance and successful adoption of infrastructure sharing regulations. As an infrastructure sharing relationship between service providers involves elements of both cooperation and competition, the regulators recognize the need to first explore alternative dispute resolution mechanisms which are speedy and simplified to encourage negotiated outcomes while maintaining the certainty of an adjudicated decision where necessary.

10. Universal access

To encourage infrastructure sharing in support of its universal access goals, regulators can consider the introduction of incentives for service providers that share infrastructure as part of their efforts to deploy to rural and underserved areas. Such incentives may, for example, take the form of regulatory exemptions (ensuring that such exemptions do not lead to re-monopolization of the market and do not unreasonably restrict consumer choice) or financial subsidies taking into account the need to minimize distortions to competition.

11. Sharing with other market players and industries

Regulators also recognize that sharing should be encouraged not only within the boundaries of the Telecommunications/ICT and Broadcasting industry, but together with other infrastructure industries (such as electricity, gas, water, sewage, etc.) as well. In the context of technological development, joint infrastructure building (with other market players and with other industries) may be encouraged, providing for timed, organized opportunities for access to ducts and conduits (for example, for the joint laying of fiber) to distribute the cost of civil works among service providers and reduce the inconvenience for traffic in towns and cities. This would also provide for a positive environmental (including aesthetic) impact, in particular by reducing the number of mobile masts and towers.

12. Sharing of regulatory practices

Regulators recognize the need for an appropriate level of international and regional harmonization to ensure that best practice regulatory policies on sharing are widely spread, and regional organizations have an important role to play in this regard. This is even more important in areas where a specific regulatory issue has a significant cross-border effect and thereby cannot be tackled by a national regulator.



ITU 9th Global
Symposium
for Regulators
10-12 November 2009
B e i r u t
L E B A N O N

9

BEST PRACTICE GUIDELINES ON INNOVATIVE REGULATORY APPROACHES IN A CONVERGED WORLD TO STRENGTHEN THE FOUNDATION OF A GLOBAL INFORMATION SOCIETY

The technological and market changes that have taken place recently in the sector with the convergence of networks, advent of IP technologies and broadband developments, have blurred the boundaries between the once-separate telecom, Internet, broadcasting and electronic media worlds, bringing new players as well as driving new opportunities and challenges. Today, convergence of markets, applications, services and users' terminals looks inevitable, being both convenient for consumers and promising for market players in creating new opportunities and revenue streams.

Meeting the expectations of all information and communication technology (ICT) stakeholders by creating an environment conducive to investment is critical to stimulating growth of converged markets. This also calls for further regulatory reforms, which may require innovative and forward-looking regulatory action. Yet, countries around the world may follow different paths of development and use different strategies to promote convergence based on the state of development and nature of their markets.

We, the regulators participating in the 2009 Global Symposium for Regulators, have identified, and put forward the following best practice guidelines for innovative regulatory approaches in a converged world to strengthen the foundation of a global Information Society.



I. PROMOTING CONVERGENCE TO FURTHER DEVELOP ICT AND BROADCASTING MARKETS

1. We recognize that convergence is a technology and market-driven process.
2. We recognize that convergence is most likely to thrive in an environment which allows competition between broadband networks and infrastructure and service providers.
3. Nevertheless, we note that regulators need to be particularly attentive to the challenges stemming from convergence, in order to pave the way for the establishment of a regulatory environment that is transparent, is conducive to investment and growth, fosters fair and greater competition as well as innovation, stimulates the deployment of infrastructure, promotes the development of new services, is security conscious, and protects and benefits consumers.
4. We believe that, in doing so, policy-makers and regulators need to:
 - a. Establish appropriate policy goals and refrain from imposing regulatory restrictions except when strictly necessary to promote competition and consumer protection, and that are proportionate to the established policy goals.
 - b. Adopt a technology-neutral approach, including in frequency spectrum allocations and assignments, to facilitate the use of all transport mechanisms, whether wireline or wireless, and to promote the utilization of new and emerging technologies.
 - c. Promote innovation and research and development.
5. Regulators need to adopt appropriate regulation on interconnection and access, including pricing, taking into account the relevant technological market developments including the roll-out of Next Generation Networks in the core (NGN) and in the access layer (NGA).
6. We note that NGNs and IP-based services may offer the opportunity for operators to take advantage of market convergence and create new revenue streams while expanding access to ICT services at lower costs to consumers.
7. We recognize that regulators should take an active part in setting international standards relating to convergence in order, for example, to ensure an optimum level of quality of service and increased interoperability between different networks, applications, services and devices, in a constantly changing technological and market environment, whilst taking utmost account of the primary role that the industry has in developing effective standards.
8. We note that voice services, no matter which technology they use, should benefit from a flexible numbering plan and simple assignment and reservation procedures both at national and international levels. A coordinated approach to numbering plan development will foster

effective market entry for new players, flexible and effective number portability and fixed-mobile convergence.

9. Regulators may consider developing adequate provisions both in the fixed and the mobile Internet access services to ensure technology neutrality and effective management of Internet traffic.
10. We recognize the importance of promoting universal access to broadband services, notably by developing a broadband policy and a targeted universal access strategy and by cooperating with governments and international organizations. These strategies need to be aligned with policies of other sectors and programmes (such as e-governance, e-education, e-government, e-health, e-commerce), as appropriate.
11. With the growing dependence of government, businesses and society on converged ICT services we recognize the importance of working with other agencies to ensure the resilience of networks and services and that contingency plans are in place to safeguard critical national infrastructures, as well as during times of national emergencies.
12. We recognize that regulators need to pay particular attention to all environmental issues and where required issue guidelines on the use of ICTs to support meeting environmental commitment.

II. BUILDING EFFECTIVE REGULATORY INSTITUTIONS

1. We recognize the importance of regulatory authorities being able to carry out their mandate efficiently, while ensuring consistency and transparency of regulation, equal treatment of market players and accountability of regulatory decisions.
2. We stress the importance for regulatory authorities to be empowered with suitable tools to ensure enforcement of the various laws, by-laws, regulations and procedures.
3. We recognize that the creation of a converged regulator in charge of ICTs and broadcasting could be an effective step towards enabling market integration in a converged environment. Should this not be feasible, closer coordination and collaboration between the sector-specific regulatory authorities in charge of telecom, broadcasting and electronic media, as well as authorities in charge of competition is essential.
4. We recognize that a converged regulator will require skilled human resources and adequate financial resources in order to perform its extended mandate successfully.
5. We stress the importance of integrating into the mandate of the converged regulator strategic and policy activities to build the information society and to play an inter-sectoral coordinating role.



6. We recognize the importance of close collaboration with other concerned agencies to ensure that appropriate measures and tools are put in place to safeguard Intellectual Property Rights (IPR), Internet safety covering such issues as the protection of the children online and fraudulent activities.
7. We note the importance of further observing and examining the evolution of regulatory institutions to reach efficient regulation for the development of domestic markets and consumer welfare and share best practices.
8. We recognize the importance of international cooperation between national and regional regulatory authorities in building a harmonized and coordinated approach to oversee the evolution of the converged markets.

III. USING REGULATORY TOOLS TO STIMULATE INVESTMENT IN A CONVERGED WORLD

We recognize that, in order to stimulate investment to grow converged markets, regulators need to further:

1. Build an adaptive regulatory framework by adopting a technology neutral approach, administratively simplified and flexible licensing regime providing for easy market entry of new players, such as through general authorizations and multiservice/unified licences.
2. Encourage the roll-out of broadband infrastructure (especially in remote and underserved areas) by providing suitable incentive schemes such as tax incentives, lower regulatory or spectrum fees and by facilitating access to rights of way.
3. Foster competition in converged services over wireless networks through efficient and integrated spectrum management, using market based tools such as auctioning to assign spectrum more efficiently while recognizing that spectrum is a public good.
4. Shift regulatory attention from retail to wholesale markets, i.e., by ensuring that alternative operators have access to dominant players' infrastructure (through passive sharing such as duct sharing, local loop unbundling, local sub-loop unbundling, bitstream access, network and facility sharing, etc.) to offer competitive converged services, therefore avoiding unnecessary duplication of infrastructure and reducing costs.
5. Apply effective, proportionate and non-discriminatory regulatory measures to enable the development of convergent bundled services while promoting competition among market players, and offering a level playing field for small niche players.
6. Raise awareness of the benefits and risks of technological progress for the market and consumers

and consider regulatory measures to address issues such as personal and data protection, consumer rights, protection of minors and vulnerable segments of the society and protection of end-users.

7. Involve all stakeholders in policy setting, improve transparency, conduct public consultations and consider other collaboration mechanisms to further dialogue with industry, consumers and other \stakeholders, employing self-regulatory measures to the widest extent feasible.
8. Conduct periodic regulatory and market review that may include regulatory impact assessment, making the outcomes widely available and using them to refocus national policies and strategies.

IV. STIMULATING GROWTH IN INNOVATIVE SERVICES, APPLICATIONS AND DEVICES TOWARDS CONNECTING THE UNCONNECTED AND FOR THE BENEFIT OF CONSUMERS

1. We believe that Governments and regulators have a key role to play in stimulating demand for ICT services and applications, in the framework of broader strategic goals, such as connecting public institutions (especially public administrations, schools, libraries and hospitals), businesses and residential users with broadband, promoting economic development, digital inclusion, social cohesion and equality of opportunity.
2. We recognize the key role regulators and other relevant agencies play in overcoming connectivity challenges, increasing ICT literacy and awareness of security issues, fostering the development of content in local languages (including on regulators' websites), promoting the availability of low-cost multifunctional devices, encouraging innovative public private partnerships (PPPs) and using universal access/universal service mechanisms to connect underserved areas more quickly while involving all stakeholders.
3. We, suggest that governments may consider using public funds to finance infrastructure roll-out in areas where private sector investment is insufficient.
4. We recognize that the deployment of NGN and NGA and the more rational use of resources, such as sharing of common infrastructure and scarce resources may stimulate the development of new services and applications available to users, lower prices to consumers and is also likely to have a leveraging effect on other sectors and the entire economy.
5. We recognize that increasing competition and the move towards convergence raise the importance of consumer protection and consumer education with respect to both the opportunities and challenges that Internet connectivity brings.

10



BEST PRACTICE GUIDELINES FOR ENABLING OPEN ACCESS

With the growing complexity of the ICT market environment, there is a need to rethink the different degrees of regulation to anchor national broadband strategies and regulatory frameworks around the multi-faceted concept of open access to and over networks, which provides for achieving effective competition while ensuring accessible, affordable and reliable services for consumers.

A new ladder of regulation may now be required to set the right balance between service competition and infrastructure competition to address the challenges associated with access to broadband networks and services. This includes ensuring equal and non-discriminatory access to the networks and lifting potential bottlenecks that could prevent end users from enjoying the full benefits of living in a digital world, driven by speed, ubiquity of access and affordable prices, irrespective of the location of the networks providers and users.

We, the regulators participating in the 2010 Global Symposium for Regulators, put forward the following best practice guidelines for enabling open networks.

I. DEFINING OPEN ACCESS: MAKING SENSE OF THE VARIOUS CONCEPTS

1. We note that, from a service provider's perspective, open access means the possibility for third parties to use an existing network infrastructure. Open access can have two main forms: regulated open access (such as unbundling, especially where there is a dominant operator), and commercial open access.
2. Every user (consumer) should have access to all services and applications carried over these networks, as long as those services

and applications are public and lawful; regardless of the type of network and who is supplying or using them; and in a transparent and non-discriminatory fashion. The user's range of choice should not be unduly constrained by the inability of competitors to obtain access services, especially over the last mile infrastructure.

II. OPEN ACCESS TO NETWORKS: WHAT POLICY AND REGULATORY TOOLS ARE NEEDED TO ENABLE OPENING UP ACCESS TO NETWORK FACILITIES (i.e., international fibre networks, “essential” or “bottleneck” facilities, other networks) WITHOUT HARMING INVESTMENT AND INNOVATION?

1. We stress the importance of legislation to set out the general principles of open access – non-discrimination, effectiveness and transparency – highlighting the importance of both active and passive infrastructure sharing in the deployment of electronic communications networks in property owned by any operator, private entities and public bodies, even if they are operating in other sectors.
2. We note that in order to encourage broadband deployment, preserve and promote the open and the interconnected nature of the public Internet, regulators may consider mandating dominant providers of national broadband networks, including cable landin stations, to provide open access on a fair and non-discriminatory basis to their networks and essential facilities for competitors at different levels of the networks.
3. We recognize the importance of wholesale regulation, including the obligation to publish reference offers for access to essential facilities and prices oriented to costs, as means to ensure open access.
4. We recognize that, in countries where Fibre-to-the-Building is deployed, the regulators need to define rules that ensure shared and equal access, and prevent discriminatory behaviors and monopolization by the first infrastructure operator in such buildings.
5. We recognize that a centralized information system, containing the data records of infrastructures held by public bodies, electronic communications operators and other public utilities that can be shared, would be of great advantage to all market players. We encourage operators to set up and make available in a database accessible online, information regarding passive infrastructure (i.e., civil elements such as ducts and towers) that can be shared (including paths and space available) with the respective prices oriented to costs.
6. We recognize the importance of coordination among all stakeholders (from the ICT sector and beyond) in the deployment of civil works to prevent any barriers to the spread of broadband networks. We furthermore stress the importance of defining flexible open access rules adapted to the fast-paced broadband growth.

7. We recommend the development of a change management strategy to assist the regulators in reforming their regulatory practices in order to adequately adapt to the exigencies of new market structures, innovations and business models

III. OPEN NETWORKS: HOW TO ENSURE THAT EVERY CITIZEN HAS ACCESS TO THE BENEFITS OF UBIQUITOUS BROADBAND NETWORKS (i.e., through policies for universal access to broadband, transition to NGN, leveraging on the digital dividend)

1. We recognize that efficient allocation and assignment of the digital dividend spectrum, will result in social and economic benefits that could stimulate innovation for the provision of lower-cost communications and services, especially in rural and remote areas.
2. We suggest that governments update the definition of universal service as needs evolve to ensure technology neutrality and the inclusion of broadband access.
3. We note the need to put in place concrete national plans and strategies to stimulate deployment of broadband networks, particularly in developing countries. Furthermore, given the challenges in attracting investment for large scale deployments, these strategies should consider the role of the state in funding the national broadband infrastructure, *inter alia* through Public Private Partnerships and promoting the involvement of municipalities or cities.

IV. OPEN AND NEUTRAL INTERNET: HOW TO HANDLE TRAFFIC MANAGEMENT OVER INCREASINGLY CONGESTED NETWORKS WHILE APPLYING FAIR RULES?

1. With regard to Internet traffic management, we recommend that only objectively justifiable differentiations be made in the way in which various data streams are treated, whether according to the type of content, the service, application, device or the address of the stream's origin or destination.
2. We recommend that when Internet Service Providers (ISPs) do employ traffic management mechanisms for ensuring access to the Internet at any point of the network, they comply with the general principles of relevance, proportionality, efficiency, non-discrimination between parties and transparency.
3. We recognize that to ensure reasonable traffic management practices, regulators should take measures such as:
 - Consider implementing measures for ISPs to disclose information concerning network management, quality of service and other practices as is reasonably required for subscribers and content, application, and service providers;

- Allow clients to quickly end their contracts without high switching costs,
 - Allow clients to prescribe minimum quality of service for Internet access, and
 - Create policy directives stating the rights of consumers to access any lawful content, applications, and services over their Internet connections.
4. We note that these principles would not supersede any obligation an ISP may have—or limit its ability—to deliver emergency communications or to address the needs of law enforcement, public safety, or national or homeland security authorities, consistent with applicable law.
 5. Regulators may consider facilitating the creation of local content and the implementation of local Internet exchange points (IXP), to complement and ease the international data flow.

V. OPEN ACCESS TO CONTENT: WHAT ROLE FOR REGULATORS IN BRINGING PUBLIC SERVICES ONLINE (i.e. e-government, e-education, e-health) AND CREATING DEMAND FOR SUCH SERVICES?

1. We stress the importance, on one hand, of the creation of preconditions for the organizational, legal and technical, standardization and interoperability aspects, so that public authorities can offer their services electronically and, on the other hand, that public websites be created and maintained to be user friendly and accessible to all, according to relevant guidelines and standards.
2. Regulators may also want to ensure broadband connectivity to all schools, health centres and hospitals so that citizens may benefit when connecting through high bandwidth to these services.
3. We note that there is a definite need to create awareness about the risks of technological progress among consumers and take necessary measures for data protection, privacy, consumer rights, and protection of minors and vulnerable segments of the society

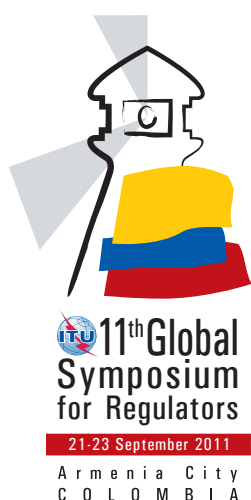
VI. CHALLENGES TO OPEN NETWORKS (i.e., cyberthreats, unforeseen aspects of the Information Society, disputes, regulatory efficiency and consistency across services and networks): WHAT STRATEGIES?

1. We note that open networks pose challenges in terms of network stability, business continuity, resilience, critical infrastructure protection, data privacy and crime prevention. IP networks, being based on an open architecture and well known protocols, are vulnerable to cyber attacks. The complexity of the challenges require cross-cutting approaches in the form of multi-stakeholder processes on one hand, and enhanced inter-



service co-operation between the various authorities concerned on the other.

2. We note that it is essential that service providers exercise reasonable network management practices with respect to outbound as well as inbound traffic. Such practices can help stamp out attacks at the source and thus stop them from spreading, without subjecting the network to congestion.
3. We recommend that measures for outbound traffic monitoring be developed and eventually standardized to add a new layer of security to the existing measures deployed by stakeholders.
4. Regulators may consider implementing measures to prevent ISPs from connecting unlawful user devices to the networks.
5. We recognize that strategies aimed at ensuring security in cyberspace has to transition from the traditional reactive stance to an incrementally proactive stance by reducing windows of vulnerability, improving reaction times, and effectively mitigating attacks. Also, we stress that preventing attacks by patching vulnerable systems, implementing firewalls or other access control technologies, monitoring through intrusion detection systems, and responding to the threats in real time, have become crucial to effective network operation.
6. We stress the importance of a harmonized regulatory framework within regions and the establishment of a broader dialogue between all stakeholders so that this central issue of open access networks can be further discussed and the appropriate measures taken.



BEST PRACTICE GUIDELINES ON REGULATORY APPROACHES TO ADVANCE THE DEPLOYMENT OF BROADBAND, ENCOURAGE INNOVATION AND ENABLE DIGITAL INCLUSION FOR ALL

The rapid growth of the digital economy presents huge opportunities for economic and social development, creating global markets for applications and services, improving productive capacity, reducing the cost of doing business, and unleashing creativity and innovation. The growth of broadband networks will accelerate this trend, offering the opportunity to leapfrog time and distance limitations and providing greater bandwidth across the globe.

Similarly, these networks have and will continue to provide new ways for all members of society, regardless of gender and including persons with disabilities, to obtain information that will promote greater education, employment, health, safety and security, and for economic gain. In order to reach the global potential of broadband, however, regulators and policy makers will need to embrace a global vision of these collective benefits and balance regulatory certainty with flexibility and liberalization on a global scale. The technology exists right now to create a profusion of interconnected broadband networks, with a vibrant and competitive market to access them. In an era in which broadband is increasingly considered the right of every citizen, smart regulation will continue to evolve toward greater openness and dynamism, while mitigating the associated challenges and threats.

We, the regulators participating in the 2011 Global Symposium for Regulators, recognize that there is no single, comprehensive blueprint for best practice, but agree that learning from countries' experiences is possible. Therefore, we have identified and endorsed these regulatory best practice guidelines to

advance the deployment of broadband, encourage innovation and enable digital inclusion for all.

I. FUNDING MECHANISMS FOR PROMOTING THE DEPLOYMENT OF BROADBAND INFRASTRUCTURE

1) *Leveraging partnerships*

We recognize that while the private sector will play the central role in broadband development, supportive policy and good governance are essential for broadband deployment and take-up to succeed. When such deployments do not offer sufficient returns for private investment, public funds can be mobilized through public-private partnerships (PPP). Where public funds are committed to broadband infrastructure investment, or in the case of essential facilities, regulators may employ open access arrangements (i.e., unbundling) to maximize the economic benefits across as broad a base of users and suppliers as possible. The sale or lease of such infrastructure facilities should be implemented in a transparent and non-discriminatory manner, so that it does not distort the associated markets.

When combined with a regulatory framework that eliminates barriers to new entrants (both domestic and international), market-based schemes are the most effective way to promote the deployment of backbone and access networks alike. When such mechanisms are supplemented with access to the infrastructure of other industries-electricity, water supply and transportation-the costs associated with infrastructure deployment can be reduced, generating greater incentives for private investment.

2) *Modernizing universal service programmes and funds*

We believe that including broadband internet access in the universal service definition can be a first step to bridging the looming digital divide. In addition, a national universal service programme that incorporates a framework to ensure blanket access to essential broadband services can be chosen.

The universal service needs to be defined in a technologically neutral manner, i.e., by defining services rather than networks or technologies.

Regulators and policy makers may consider transforming existing universal service programmes into programmes for digital inclusion that support broadband services for all citizens. Universal service programmes could be financed by revenues raised from the activities of a wide range of market players as well as from alternative sources. Smart subsidies can be used to avoid distorting the market while furthering universal service goals.

Where a Universal Access/Service Fund (UASF) exists, it could be modernized:

- To serve as a facilitator of the market, piloting innovative rural services and applications, creating demand for advanced ICT connectivity

and services (i.e., through financing broadband access for schools and hospitals, and direct subsidies to users); and/or

- To serve as a funding mechanism for broadband networks into rural and high-cost areas through support both at the retail end (e.g., shared access), as well as at the wholesale end (e.g., through subsidizing intermediary network facilities such as backbones, wireless towers and other passive infrastructure).

II. FOSTERING PRIVATE INVESTMENT IN BROADBAND THROUGH INCENTIVE REGULATION

Policy makers and regulators have several options to provide incentives for the private sector to invest in the ICT sector such as by adopting enabling policies, simplifying licensing regimes, making available more spectrum, reducing regulatory obligations, and offering tax incentives.

1) *Providing overall direction through a national policy*

We believe that governments need to enact a consistent and overarching ICT and/or broadband policy. This policy must clarify the government's commitment to foster broadband development across all sectors and through liberalizing the broadband market and empowering the regulator to move forward with a liberalization plan.

We are mindful that policy makers with the support of regulators need to review existing legal and regulatory frameworks in order to reduce barriers that hinder broadband roll-out and usage, i.e., revising key laws such as the ICT law, e-transaction law, intellectual property law and law on the protection of personal information.

Furthermore, there is an urgent need to recognize the challenge of climate change, including e-waste, as a priority in the political agenda of countries that have not yet done so in order to enable allocation of resources to strengthen the supervision of regulatory standards for e-waste management.

We recognize that it is best practice to use inclusive and wide-ranging public consultations when drafting national plans, policies and strategies for the development of the ICT sector in general or the deployment and take up of broadband in particular to ensure that the monumental investments ahead are based on the collective decisions of government, industry, and society. The establishment of coordinating bodies, such as a national broadband or digital inclusion commission or council, encompassing the public authorities, investors and users as well as wider range of stakeholders can serve as a platform for developing a common understanding, vision and strategy. Another way of nursing a positive relationship with all stakeholders is the creation of enabling policy incubators to crowd-source ideas and brainstorm on out-of-the-box solutions for taking broadband to the next level.

2) Rationalizing licensing regimes

In order to facilitate entry in the broadband market and increase competition at all network layers, licensing regulation can be simplified and a unified licensing framework can be introduced with all services unified under a single licence or concession.

In order to enable ICT operators to start their activities rapidly, regulators need to consider reducing licensing fees as well as the administrative and formal requirements to enter the market and provide service. Provisional licences may be delivered free of charge (or only covering administrative costs) during a renewable trial period ahead of the delivery of the final licences.

3) Making spectrum available for mobile broadband

With the evolution of the demand for more powerful, ubiquitous and seamless broadband services, the distribution of spectrum for broadband wireless services becomes a cornerstone of future growth of the digital economy. While considering national goals, economic realities and market pressures, regulators and policy makers need to address a host of issues in order to ensure spectrum is used in the most efficient manner.

With this regard, we recognize that an incentive-based, market-driven approach to making more spectrum available for mobile broadband services is preferable, enabling inter-platform competition and spurring innovation. A wide range of new-generation spectrum auctions could be designed to extend access to broadband in unserved and underserved areas, such as voluntary incentive auctions, reverse auctions and offering all broadband spectrum bands in a single auction. Furthermore, allowing flexible use of spectrum, including spectrum refarming and secondary markets for spectrum, is key to ensuring that with market maturity and evolution spectrum moves to more productive uses, including mobile broadband. Leveraging on the “digital dividend” spectrum, the footprint of mobile broadband access can be extended while TV “white spaces” could be made available for unlicensed use enabling more powerful broadband services.

4) Removing barriers to broadband build-out and access to broadband networks

We recognize that countries with targeted policies and regulations to remove barriers to the build-out of broadband infrastructure, including those supported by government-led initiatives to stimulate demand, will be in the vanguard of the digital economy. Reducing regulatory burdens and employing the least degree of regulatory intervention is essential to lower the cost of laying infrastructure, providing services to end users and stimulating new applications and digital content. Regulatory imperatives embedded in formal instruments that cannot be revised in a timely manner to address evolving circumstances will inhibit broadband growth, particularly when they impact technology choice or the operational activities associated

with broadband deployment and use. Expanding on the GSR Best Practice Guidelines 2008, regulators could act to:

- Facilitate the grant of the proper permissions to build-out infrastructure, especially where the access network requires rights of way or fiber-to-the-home deployment as well as to accommodate the delivery of broadband multiple-play services;
- Adopt rules or promote policies and incentives conducive to and encouraging infrastructure sharing, particularly involving passive sharing of towers, ducts and other support facilities;
- Encourage the establishment of national Internet Exchange Points (IXP), enabling local Internet Service Providers (ISPs) to exchange Internet traffic at the local, national or regional levels, thus lowering the cost of content delivery and optimizing bandwidth use, especially for advanced multimedia services;
- Facilitate the establishment of Virtual Landing Points (VLP) for submarine cables. The VLP and its associated international gateway could be owned and managed by an ICT operator identified through a competitive bidding process or based on a PPP model. The VLP would be required to supply bandwidth at high capacity to all licensed operators in the country under standard market best practice terms and conditions, such as open access, non-discriminatory and transparent pricing.

5) *Granting tax incentives*


Regulators and policy makers need to cooperate to reduce taxes on services, devices and equipment which will in turn increase penetration levels and pave the way for increased demand of broadband services.

More broadly, targeted fiscal incentives to providers of broadband networks, services and equipment, whether fixed or mobile, can be granted to stimulate a robust and competitive broadband marketplace, such as relief from certain financial levies for a certain period (i.e., spectrum fees in specific areas of interest); application of a single preferential import duty on equipment and materials; exemption from value-added tax on imported equipment and material that is manufactured or sold locally; and tax deductions for those directing resources at research and development of applications and digital content.

III. STIMULATING INNOVATION AND DEVELOPMENT OF APPLICATIONS AND SERVICES

1) *Nurturing the creation and adoption of applications, services and digital content*

We believe that the wide diffusion of e-government and e-finance applications and services will considerably raise consumer demand for broadband. To this end, government agencies need to adopt pertinent applications and content to allow for greater participation of its citizens thus fostering the advent of a



new digital culture. Many electronic applications such as e-procurement, e-payment systems, document tracking and workflow management systems can improve government business processes while increasing citizen participation in the country's socio-economic development. Applications such as e-Health, e-Agriculture, and e-Education initiatives help governments achieve critical national goals, for which it becomes indispensable to promote confidence in the use of ICTs.

We also believe that there is a role for policy makers and regulators in the broadband ecosystem to create the environment in which dynamic digital content creation, dissemination and adoption can thrive. As a first step, a thorough and forward-looking review of the regulatory framework of the ICT sector is essential to assess necessary changes to permit new and emerging services and applications, such as m-banking and social networks.

2) *Spurring investment in R&D activities*

Innovation is essential to the growth of the broadband economy and for ensuring the right to access, use and create digital content.

We believe that private investment in Research and Development (R&D) should be encouraged by all possible means. In addition, when resources are available, investment should be channeled to public research and development. UASF, for instance, could be used to provide partial funding for R&D activities. Furthermore, government agencies, including regulators, the private sector and non-governmental organizations can cooperate to provide incentives for the public to develop innovative digital applications and content.

We are mindful that governments can encourage innovation to address specific challenges, notably to spur the local content deployment in local languages and domain names, and establish training centres to encourage students' technological innovations. Of equal importance to the local social and economic development is the creation and maintenance of ICT innovation incubators and business development centres to provide hi-tech hosting, training and advice to small and medium enterprises and offer funds and other assistance to start-up ICT companies.

3) *Enforcing Intellectual Property Rights*

We recognize that it is essential to protect intellectual property, as this empowers researchers and inventors to lead the way to a smart and innovative digital economy. Innovation can be encouraged through intellectual property regimes that balance monopoly use of inventions with building a rich public domain of intellectual materials.

In addition, we believe that ensuring there is a balanced, proportionate and robust mechanism for content owners to address copyright infringement endows a stable and solid basis for innovation and creation. Designing rules and procedures for copyright enforcement while harboring consumer privacy

fully means finding a delicate balance that both stimulates and protects all the different stakeholders in the digital economy.

IV. EXPANDING DIGITAL LITERACY

We recognize that digital literacy has become an essential personal and professional asset as the global economy evolves into one that is open, competitive and digital. Countries with high levels of digital literacy are more innovative and productive and are capturing a greater share of the world's trade, investment and jobs.

We are mindful that regulators and policy makers have a role to play in promoting a first-class training system in all countries to provide creative human resources. It is crucial to facilitate investment in all forms of education and particularly in ICT education from early training to advanced instruction notably in the area of R&D, ICT knowledge transfer and the development of digital applications and content (in particular those related to the local culture). Sufficient and sustainable funding should be provided to universities, computer labs and other public research institutions, leveraging international partnerships when possible and advantageous.

12



BEST PRACTICE GUIDELINES ON REGULATORY APPROACHES TO FOSTER ACCESS TO DIGITAL OPPORTUNITIES THROUGH CLOUD SERVICES

The growth of cloud computing has the potential to offer tremendous cost savings, efficiency and innovation for government, businesses and individuals around the globe. For entrepreneurs and businesses, big and small, cloud computing delivers unique economic leverage that means investment can translate into impressive returns and costs savings. With the advent of cloud computing, digital resources are now becoming accessible over multiple networks anywhere, anytime. Yet, reaping the full potential of cloud computing requires cooperation and collaboration between governments, industry and consumers to build confidence in cloud-based services. Importantly, the growth of cloud computing will depend on ubiquitous and affordable broadband networks to which service providers have access on a non-discriminatory basis.

We, the regulators participating in the 2012 Global Symposium for Regulators, recognize that effective and dynamic regulation can facilitate cloud computing uptake and allow it to thrive and act as catalyst for economic growth. Therefore, we have identified and endorsed these regulatory best practice guidelines to promote innovation, investment and competition in cloud infrastructure and services, and protect consumer interests.

AWARENESS RAISING AND PROMOTION OF UPTAKE BY THE PUBLIC SECTOR:

Cloud services and the opportunities and savings they make available to governments around the world should be actively pursued and promoted. Bringing awareness of these opportunities will generate economic opportunities and provide great value to citizens, consumers and businesses.

BROADBAND INFRASTRUCTURE: Regulators need to work to reduce barriers to broadband deployment, actively facilitate build-out of national fibre-optic networks and international connectivity links, including submarine cables, and promote infrastructure sharing and coordination of civil works, including across sectors, as well as policies to speed rights of way access, and installing data-centre infrastructure. This will provide incentives for content delivery networks and data-center companies to install locally. It is also necessary to ensure the deployment of services in unserved and underserved areas, including emergency and accessibility-enhanced services.

IP INTERCONNECTION: Regulators should seek to ensure that all users derive maximum benefit in terms of choice, price and quality of service and to minimize any distortion or restriction of competition.

SPECTRUM: For the future of cloud computing services, several actions could be taken to release additional, critically-needed spectrum for wireless broadband, including repurposing spectrum, opening white spaces to unlicensed use, or conducting incentive auctions. In addition, policies that generally encourage the harmonization of international spectrum and communications device approvals must be encouraged.

MARKET DEFINITION IN A CONVERGED CLOUD: Taking into account network and service convergence, promoting migration to NGN and encouraging competition, regulators may consider adopting a light-touch approach to new ICT sector players, such as content and application providers, while carefully assessing the impact of their decisions on all market players.

MARKET POWER: Regulators need to ensure that communication providers do not engage in conduct that constrains the provision of cloud services for reasons that are not transparent, objective, non-discriminatory and proportionate.

ENFORCEMENT: Regulators need to establish a means of identifying breaches to ensure they are able to respond effectively. This may be achieved through (1) self-regulatory mechanisms, content service providers notifying the appropriate regulator of breaches of security, (2) ideally changes to certain aspects of data protection legislation which is impossible to monitor and hence unenforceable in practice; and (3) mechanisms for complaint handling and resolution of disputes, including alternative dispute resolution mechanisms, which are effective, fair, proportionate, protecting the rights of all stakeholders and conducive to cooperation among them.

CLOUD TRANSPARENCY: Regulators may consider encouraging cloud service providers (CSPs) or introducing specific obligations with regard to notifying users of the chain of providers that underpin the provision of cloud services. Regulators also need to ensure that ISPs provide customers with greater transparency about the traffic management practices being followed by companies on their networks.

CONSULTATIVE PROCESS: Regulators need to consult with CSPs and other market players about the appropriate regulatory treatment and

classification of certain cloud services, with a view to issuing guidance providing legal certainty for market entrants and cloud users, for example through conducting multi-stakeholder fora to develop best practices for protecting consumers.

NET NEUTRALITY: A certain level of traffic management is necessary to minimise network congestion. Regulators and policy makers should seek to implement measures to oversee the use of traffic management techniques to ensure that those do not unfairly discriminate between market players.

Regulators also need to review existing competition laws to determine whether the regulatory tools, such as anti-discriminatory law or regulations that are already in place adequately address the competition issues that tend to impact net neutrality.

QUALITY OF SERVICE AND EXPERIENCE (QOSE): A number of regulators enforce minimum QoSE requirements to ensure that customers and edge providers have reliable and uninterrupted services, including access to personal information in the cloud. In order to deliver these services, network and service providers will have to ensure transparent and clear terms and conditions of contracts signed by customers. Regulators also need to ensure the publication of comparable information on the availability and QoSE and, when necessary, introduce minimum requirements for QoSE in order to avoid degradation of the quality provided to customers.

CONSUMER EMPOWERMENT: Policymakers need to ensure that consumers are empowered to control their personal data and protect their privacy through facilitating Cloud Literacy. Cloud users need to be sure that information stored or processed in the cloud will not be used or disclosed in harmful or unanticipated ways.

PRIVACY & DATA PROTECTION: International agencies as well as national policy makers and regulators must work together to develop efficient, effective, proportionate and readily enforceable laws to protect consumers' reasonable expectation of privacy. Responsibility should also be devolved to stakeholders developing self-regulation, for example establishing privacy policies that are transparent and appropriate for the services they provide. Governments should also continue to work together to ensure no single entity adopts privacy regulations that are so burdensome that they restrict the free flow of information or prevent CSPs from maximizing the cost saving inherent in those services.

CLOUD STANDARDS: The development and widespread adoption of appropriate national, regional and international technical and organizational standards are required to address a range of concerns among cloud providers and users, including the integration of legacy systems with cloud interfaces; data and application portability and security.

DATA PORTABILITY: Proprietary cloud computing application programming interfaces (APIs) can limit customers' ability to switch to a different provider (lock-in effect). Standardizing APIs would facilitate data portability and would

allow greater reliability by allowing the same functions to be performed by multiple cloud computing providers.

INTEROPERABILITY: Interoperability is key for consumers of cloud computing services as it facilitates information flows with appropriate security and privacy protections. Therefore, governments need to support the development of standards and measures that will speed the arrival to markets of communications devices and ensure seamless wireless connectivity and services. Eliminating unnecessary restrictions on the trans-border flow of data is of particular importance.

DEMAND STIMULATION: Governments must lead the way in the adoption of cloud-based computing. In addition, efforts need to be deployed to overcome barriers to broadband adoption, pursuing multiple initiatives targeted at both consumers and small businesses.

CAPACITY BUILDING: As cloud computing is expected to be one of the main drivers of future growth of digital economies, regulators and policy makers can actively contribute to the development of a new generation of educated and technology-savvy workforce by ensuring the timely and effective introduction and spread of new and improved products and processes in the economy, reinforcing the ability of individuals and businesses to continuously create wealth, and putting a premium on all forms of learning, with close attention to both indigenous knowledge and the transfer of knowledge.

RESEARCH AND DEVELOPMENT (R&D): Promoting R&D activities in the field of cloud computing is an essential tool for designing future-proof digital economies. Close regional and international cooperation with relevant international bodies as well as universities should be encouraged.

REGULATORY COOPERATION: Cloud services impact on a range of regulatory areas, both within jurisdictions and across multiple jurisdictions. Regulators should cooperate and coordinate regulatory decision-making that is targeted at CSPs.

Internationally, governments need to collaborate to increase regulatory predictability related to the cloud and develop common core policy principles that will assist the development and adoption of cloud computing services while avoiding the creation of regulatory barriers to market entry.

REGIONAL CLOUD: Regional clouds represent a unique opportunity for a group of countries to cooperate in order to promote cloud computing services and take advantage of its benefits while reducing security, confidentiality and other vital concerns through the establishment of regional regulatory frameworks and other protective measures for businesses and consumers.

To that end, a sub-regional approach could be encouraged whereby regulators' associations promote efforts to harmonize regulatory instruments among their member countries.

13



BEST PRACTICE GUIDELINES ON THE EVOLVING ROLES OF BOTH REGULATION AND THE REGULATORS IN A DIGITAL ENVIRONMENT

The information and communication technology (ICT) sector is experiencing tremendous change led by the deployment of broadband networks (next-generation networks) that facilitate converged media, Internet and communications services, the arrival of new market players, the rapid development of smart devices, the connectivity of things (Internet of things) and people, and growing consumer demand for always-on, immediate and ubiquitous access to ICTs. In addition, the arrival of new content and application providers, such as over-the-top players, are changing the rules of the game, the market dynamics and business practices. Coupled with a sharp increase in data flow, and rapid development of new services and applications such as cloud services and mobile applications, the ever-increasing complexity of global ICT markets challenges the traditional role and mandate of the regulator, and calls for modern approaches to regulation in the digital ecosystem.

Mindful of the critical role electronic communications play in today's digital society, and recognizing the need for efficient ICT regulation that will both respond to changing market expectations, and improve social inclusiveness, safety in case of disaster and development, we the regulators participating in the 2013 Global Symposium for Regulators, recognizing that regulatory reforms take place across a wide continuum of evolving perspectives, have identified and endorsed these best practice guidelines as innovative and smart regulatory measures that will facilitate the inclusion of all.

1. REGULATION 4.0: INNOVATIVE AND SMART REGULATORY APPROACHES FOSTERING EQUAL TREATMENT OF MARKET PLAYERS WITHOUT PUTTING EXTRA BURDEN ON OPERATORS AND SERVICE PROVIDERS

While respecting their jurisdictions, we recognize that regulators need to be mindful of the transformational and trans-national aspects of regulation in a digital environment and take into consideration the changes in social norms and behaviors led by the advent of new applications and social media. Reviewing existing ICT policy and regulatory frameworks to adapt to the fast-changing environment is an ongoing process requiring coordination with multiple stakeholders. Regulators have a critical role to play in ensuring the smooth development of the ICT sector to further sustainable economic and social development benefits of the people. More effective use and implementation of digital technologies in areas such as healthcare, e-government, environment and transport, will facilitate employment and productivity and ensure a better quality of life.

We acknowledge the importance of conducting market analysis to assess the market situation in a converged environment, in order to identify operators with significant market power (SMP) and stimulate competition in the market. Ensuring that the principles of fair, equal and non-discriminatory treatment of all market players continue to prevail will foster a level playing field among regulated and unregulated players.

We acknowledge that when adopting a regulatory framework that eliminates barriers to new entrants, ensuring the inclusion of competitive provisions that guarantee a healthy relationship between all authorized players in the relevant market (operators, Internet providers, OTT providers, etc.), is one way to promote the deployment of next-generation broadband networks and access to online applications and services. Regulators can also encourage network and facility sharing through soft measures such as cross-sector infrastructure mapping that enables the coordination of civil works. Empowering consumers to make informed decisions through the development of online tools to check speed, quality of service and price of access is another measure regulators may take to foster competition.

We also recognize that in reviewing their spectrum management policy, regulators need to ensure that available and underutilized spectrum is rapidly made available for the benefit of users, and that rules to manage interferences are in place. Efficient and effective use of the radio frequency spectrum may be made by considering, wherever applicable, a new generation of auctioning or allocations and permitting flexible use of spectrum. By leveraging the “digital dividend” spectrum, the footprint of mobile broadband access can be extended, while “white spaces” can be available for unlicensed use enabling broadband services.

We recognize that terrestrial broadcasting needs to be maintained in servicing the population. We believe that adopting administratively simplified and flexible models such as general authorizations or unified licenses, where appropriate,

can contribute to facilitating market entry and stimulate competition and innovation.

We believe that regulators and policy makers should seek to implement measures to monitor the use of traffic management techniques to ensure that those do not unfairly discriminate between market players. Regulators also need to review existing competition laws to determine whether measures based on regulation or competition law, such as equal treatment of players, are already in place and whether they adequately address the issues that tend to impact net neutrality. In doing so, regulators need to be aware of the need for a balance in the treatment of all service providers.

We acknowledge the importance for regulators to understand all parameters at play in a digital environment to ensure not only affordability of access but also to promote and ensure a sufficient level of quality of service to the user (in particular for communication services that are sensitive to time delay), the need for interoperability, without putting extra burden on operators and service providers.

We encourage regulators to ensure the highest level of transparency and openness, such as by making relevant market data and regulations publicly available, and to carry out multi-stakeholder consultation on policy and regulatory matters affecting the development of the digital society in order to move to a more consensual regulatory decision making process whereby ensuring greater compliance from industry players.

We are mindful of the necessity for the 4th Generation regulator to adopt a “light touch” regulatory approach, calling for regulatory intervention only when necessary, while ensuring that market forces work without constraints and towards innovation within the prescribed national legal environment taking into consideration both traditional and new regulatory concepts. In particular, regulators should continue to ensure regulatory predictability, and foster co-regulation (e.g., voluntary standards) wherever possible, facilitating the adoption of a regulatory solution collectively developed and administered by the regulator and the industry. Regulators can also work with other interested stakeholders to reduce or remove practical barriers to broadband infrastructure deployment. We particularly recognize that encouraging operators and service providers to propose and implement innovative solutions to develop the sector may provide for a win-win solution for both the state and the industry. Regulation should ensure the sustainable development of the ICT sector that is essential to attracting the investments needed in a global digital environment.

Stimulating services uptake and access to online services and applications

We recognize that stimulation of service uptake and access to online services and applications requires flexible regulatory approaches.

We acknowledge that understanding people’s needs and how they can benefit from using ICTs is key to innovation, as both business and individual consumers are providers of incentives for innovation.

We encourage governments to work collaboratively with all stakeholders and in particular with the industry and regulators to facilitate and support the development of infrastructure and provision of services, particularly in rural, un-served and underserved areas. From the supply side, predictable and stable regulations are needed to maintain effective competition and drive the development of innovative services. In particular, regulators are encouraged to modernize Universal Service programs to extend broadband to the un-served and underserved, notably through a redefinition of the scope of universal service. From the demand side, measures such as deferring or altogether discouraging heavy or special taxes on ICT equipment and services, encouraging research and development, and endorsing special programs to stimulate e-literacy, will result in higher penetration, increased demand, better social inclusion and contribute to national economic growth. Governments and regulators have a key role to play in promoting and increasing awareness of the use and benefits of ICTs.

We recognize the role regulators can play in encouraging the development of digital local content at the national and regional levels and in stimulating the creation of online business incubators to foster the development of new applications and services, and digital cities, taking into account the need to minimize negative influences on environment, stimulate the use of “green” technologies, including “smart” resource management, decrease power consumption and creation of electronic waste.

2. THE EVOLVING ROLE OF THE REGULATOR: THE REGULATOR AS A PARTNER FOR DEVELOPMENT AND SOCIAL INCLUSION

We acknowledge that the regulator has a critical role to play in advising governments when preparing policies on development and social inclusion. Regulators can also act as a partner for ICT development and social inclusion, by facilitating (and sometimes creating) partnerships, such as private-public-partnerships (PPP), with aid-donors, governments, ministries and NGOs, in particular to meet universal access goals for rural, remote and un-served areas and for people with special needs. Regulators can further facilitate and extend partnerships with schools and local communities through projects for improving the connectivity of schools and communities to enhance use of ICT applications, provide access to technology and promote economic development. Regulators may also employ voluntary, strategic partnerships to bring comprehensive (e.g., connectivity, literacy training and equipment) solutions to low income consumers, and to ensure that persons with disabilities have access to new broadband technology, applications and services. We also encourage partnerships between the regulator and other public agencies to offer a coordinated approach for the benefit of the government and the community, as a whole. The regulator may further provide advisory and educational assistance to local communities.

We stress the need for the regulator to be autonomous in fulfilling its mandate and have clear reporting and/ or communication lines to and with the sector Minister to ensure that national objectives are harmonised and achievable.

We further recognize the importance of working in conjunction with the sector ministry to take a proactive role in promoting, informing, encouraging and raising awareness on the benefits of technology applications and service uptake to stakeholders. To encourage uptake, governments and regulators may facilitate access to low-cost hand-held broadband-enabled mobile devices, thus allowing citizens to access web applications to leapfrog barriers (such as remoteness, cost and availability) of computer-enabled Internet access.

We acknowledge the importance of collaborating with research institutes, public agencies, content providers, service providers, and NGOs to make the Internet a safer place for children.

3. THE NEED TO ADAPT THE STRUCTURE AND INSTITUTIONAL DESIGN OF THE REGULATOR TO DEVELOP FUTURE REGULATION

We recognize that as new technologies and services emerge and converge, governments may also consider converging the regulatory institutions or adapting their structure to reflect the changes within the ICT markets. Furthermore, to respond to the transnational and interconnected nature of the converged digital ecosystem, there is a need to adapt the structure of the regulator to be more reactive and flexible.

To perform its role in encouraging innovation, future growth and sustainable development, the regulator needs to be granted sufficient flexibility and autonomy in decision making and enforcing legal and regulatory instruments.

We acknowledge the need for regulators and their staff to keep abreast of the latest technical development to address matters such as IP interconnection and charging mechanisms, IPv4 to IPv6 transition, and other emerging issues.

We believe regulators have a role to play in building consumer trust and protecting security of services by appropriately addressing data protection, privacy issues and cybersecurity matters. It could be done by strengthening cooperation with other government agencies at the national level and by collaborating with other regulators and other partners at the regional and international levels. We are mindful that the exchange of experience, knowledge and ideas is vital in facing the new challenges in an interconnected global borderless digital ecosystem. Furthermore, we encourage regulators to make available online both sector information and the smart regulatory approaches they have adopted.



GSR14 Chair:
Dr Mohammed Al Amer



GSR13 Chair:
Ms Magdalena Gaj



GSR12 Chair:
Mr Lalith Weeratunga



GSR11 Chair:
Mr Cristhian
Lizcano Ortíz



GSR2010 Chair:
Mr Ndongo Diao

LIST OF GSR CHAIRMEN

LIST OF GSR CHAIRMEN



GSR2009 Chair:
Dr Kamal Shehadi



GSR2008 Chair:
General Choochart
Promphasid



GSR2007 Chair:
Mr Mohamed Al Ghanim



GSR2005 Chair:
Mr Ali Ghodbani



GSR2004 Chair:
Ms Kathleen Q.
Abernathy



GSR2003 Chair:
Ms Muna Nijem



GSR2002 Chair:
Ms Tan Sri Nuraizah
Abdul Hamid



GSR2001 Chair:
Mr Anthony Wong



GSR2000 Chair:
Mr Cuthbert Lekaukau

LIST OF GSR CHAIRMEN



www.itu.int/gsr14

International Telecommunication Union
Place des Nations
CH-1211 Geneva 20
Switzerland

Printed in Switzerland
Geneva, 2014