



## **THIRD DRAFT OF THE SECRETARY-GENERAL'S REPORT**

**(19 December 2008)**

### **Secretary-General's Report**

The ITU World Telecommunication Policy Forum (WTPF) was established by the 1994 Kyoto Plenipotentiary Conference and is covered by the provisions of Resolution 2 of the 2002 Marrakesh Plenipotentiary Conference. This Secretary-General's Report seeks to encourage contributions from ITU Member States and Sector Members on any of the themes relevant to the Forum. This Report, together with other background information relating to the themes of the WTPF 2009, is available on the ITU website at: <http://www.itu.int/wtpf>.

This document represents a compromise working draft of common ground to be discussed further at the next Expert Group Meeting. This Report is presented for review by the Second Expert Group Meeting on 24-25 November 2008.

### **PREAMBLE**

- i. The ITU World Telecommunication Policy Forum (WTPF) was established by the 1994 Kyoto Plenipotentiary Conference and is covered by the provisions of Resolution 2 of the 2002 Marrakesh Plenipotentiary Conference. Given the importance of the modern information society, the purpose of the WTPF is to provide a venue for exchanging views and information and thereby create a shared vision among policy-makers worldwide on the issues arising from the emergence of new telecommunication services and technologies, and to consider any other policy issues in telecommunications which would benefit from a global exchange of views. Although the WTPF shall not produce prescriptive regulatory outcomes or outputs with binding force, it shall prepare reports and, where appropriate, opinions for consideration by Member States, Sector Members and ITU meetings.

- ii. By Decision 9, the 2006 Antalya Plenipotentiary Conference decided to convene the fourth WTPF in the first quarter of 2009, in order to discuss and exchange views on a number of the themes, noting the following:
- that convergence, including Internet-related public policy matters, is one of the topics of high current interest to ITU Member States and Sector Members;
  - that the continued development of convergence, next-generation networks, and Internet also has significant implications for several domains, particularly for capacity-building, especially in developing countries;
  - that a study of emerging telecommunications policy and regulatory issues is also amongst the topics of high current interest to ITU Member States and Sector Members;
  - that a study of new and emerging issues as referred to in Resolution 146 (Antalya, 2006) is among the topics of high current interest to ITU Member States and Sector Members.
- iii. Decision 9 of the Antalya Plenipotentiary Conference states that arrangements for the fourth WTPF shall be in accordance with applicable Council decisions. In accordance with Decision 498 of the 2000 session of the ITU Council, discussions at the WTPF shall be based on a report from the Secretary-General, incorporating the contributions of ITU Member States and Sector Members (which can be viewed at <http://www.itu.int/osg/csd/wtpf/wtpf2009/report.html>) which will serve as the sole working document of the Forum.
- iv. The main objective of this Secretary-General's Report is to encourage contributions from ITU Member States, Sector Members on any of the themes relevant to the Forum.
- v. To give the Membership as much opportunity as possible for contributing to the preparations for this important event, and in line with previous Council decisions on this matter and Decision 9 of the Antalya Plenipotentiary Conference, the Secretary-General's Report shall be prepared according to the following timetable:

24 June 2008	First meeting of the Informal Expert Group (IEG).
6 July 2008	Deadline for receipt of IEG Membership written comments on preliminary second draft of the Secretary-General's Report.
15 July 2008	Online posting and circulation of second draft of the Secretary-General's Report.
30 September 2008	Deadline for receipt of comments on second draft of the Secretary-General's Report.
24-25 November 2008	Second meeting of the Informal Expert Group.
8 December 2008	Deadline for receipt of IEG Membership written comments on preliminary third draft of the Secretary-General's Report, presented to the second meeting of IEG.
19 December 2008	Online posting and circulation of third draft of the Secretary-General's Report.
19 January 2009	Deadline for submitting draft opinions to Secretariat to be discussed during the third meeting of the Informal Expert Group.
26-27 January 2009	Third meeting of the Informal Expert Group to discuss draft opinions.

1 February 2009	Deadline for receipt of comments on third draft of the Secretary-General's Report.
1 March 2009	Final Report of the Secretary-General and deadline for its publication.
1 April 2009	Deadline for submitting written views on the Secretary-General's Report to be presented during the Forum for the adoption of opinions.
20 April 2009	Possible fourth meeting of the Informal Expert Group.
21 April 2009	Information Session.
22-24 April 2009	World Telecommunication Policy Forum 2009.

- vi. In accordance with previous decisions by Council<sup>1</sup>, the Secretary-General shall convene a balanced, informal group of experts from Member States and Sector Members - who are active in preparing for the Forum in their own country - to assist in the preparatory process. The first meeting of that group took place on 24 June 2008 in Geneva and the second meeting is planned for 24-25 November 2008. The present draft reflects comments made during the first meeting of the Informal Expert Group.
- vii. If the 2009 WTPF is to prove successful, it will be because the final Secretary-General's Report reflects the opinions and contributions of the ITU membership as a whole. The membership is encouraged to submit comments and contributions by fax (to +41 22 730 6453) or by email (to wtpf2009@itu.int). This Secretary-General's Report, together with other background information relating to the themes of the 2009 WTPF on convergence and emerging policy issues, will be posted on the ITU website at: <http://www.itu.int/wtpf>.

**Comment [CB1]:** It should be made clear that the SG's report has not been endorsed by the IEG's members. The document is not a formal outcome of the forum, and it is not the result of a consensus reached by the IEG. The ITU SG has incorporated comments received by the IEG discretionarily.

**Comment [CB2]:** The status of these opinions should be made clearer in this paragraph. It should be explicitly mentioned that a consensus among the participants of the WTPF, including representatives of Sector Members, needs to be reached on how these opinions will be presented in the Chair's final report. It should be apparent, based on the multi-stakeholder essence of the WTPF, that all parties will need to endorse the final texts of the draft opinions for the Chair to bring them to the attention of higher assemblies, such as the ITU Plenipotentiary 2010 or the WCIT 2012.

**Comment [CB3]:** It should be mentioned that participants will also be providing background information that will be posted on ITU's website.

## 1 INTRODUCTION

- 1.1. The holding of the World Summit on the Information Society (WSIS), declared the formation of the Information Society as a common global task in the new Millennium and adopted by consensus. The results of WSIS were endorsed by the UN General Assembly. During the period 2002-2006, many developments have occurred in the telecommunication/ ICT environment that have significant and far-reaching implications, including<sup>2</sup>:
- 1.1.1. the convergence of technological platforms for telecommunications, information delivery, broadcasting and computing and the deployment of common network infrastructures for multiple communication services and applications;
  - 1.1.2. the continued growth, albeit uneven across countries, of the Internet and other IP-based platforms and related services, and the deployment of national and regional IP-based backbone networks;
  - 1.1.3. the continuing rapid development of wireless and mobile radiocommunications, and their convergence with both fixed telephony and broadcasting services;
  - 1.1.4. the need for high-quality, demand-driven international standards, which are developed rapidly, in line with the principles of global connectivity, openness, affordability, reliability, interoperability and security;

<sup>1</sup> See in particular Decision 498, found in document C2000/93, at: <http://www.itu.int/itudoc/gscouncil/c00/docs/resdec/92.html>

<sup>2</sup> This text and the following sub-paragraphs are copied verbatim from 2 of Annex 1 of Plenipotentiary Resolution 71, apart from changing "over the last four years" to "during the period 2002-2006".

- 1.1.5. the substantial investment of resources being made by service providers and equipment manufacturers for standards-making in next-generation networks (NGNs);
  - 1.1.6. the emergence of key technologies, including radio-frequency identification (RFID) and sensor-network technologies, which will be vehicles for creating new services and applications, enhancing efficiency in a revolutionary way and thereby promoting the building of the information society;
  - 1.1.7. the conviction, as set out in para. 15 of the Tunis Commitment, adopted by the WSIS, that ICTs are effective tools to promote peace, security and stability;
  - 1.1.8. the delivery of audiovisual services and applications over a wide variety of new platforms, including both fixed and mobile networks, resulting in increased competition for media distribution;
  - 1.1.9. the continuing trend towards separation of operational and regulatory functions, and the creation of many new independent telecommunication regulatory bodies, in particular in developing countries and regional economic areas, as well as the growing role of regional organizations, in order to ensure the consistency and predictability of regulatory frameworks, and encourage capital investment;
  - 1.1.10. continuing market liberalization, in particular in developing countries, including greater competition, private-sector participation and licensing of new market entrants;
  - 1.1.11. the trend in a number of Member States to regulate telecommunications/ICTs with less reliance on sectoral regulation in competitive markets;
  - 1.1.12. encouraging the effective use of telecommunications/ICTs and recent technologies during critical emergencies, as a crucial part of disaster early warning, mitigation, management and relief strategies;
  - 1.1.13. ongoing challenges relating to capacity-building, in particular for developing countries, in the light of rapid technological innovation and increased convergence;
  - 1.1.14. significant differences and shortages, within and amongst Member States, both in deployment of telecommunication/ICT infrastructures and in the capability to use them to access information (i.e., the digital divide);
  - 1.1.15. increased awareness of the role of ICTs as a tool for the development of society;
  - 1.1.16. the important role of multilingualism in enabling all countries to participate fully in and contribute to ITU's work, and in creating a global information society open to all.
- 1.2. Drawing upon its experience, ITU should take into account the WSIS outcome documents<sup>3</sup>. In particular, special attention has been given to those Action Lines where ITU has been named as moderator and facilitator (i.e., Action Line C2 (information and communication infrastructure) and Action Line C5 (building confidence and security in the use of ICTs)) and Action Line C6 (Enabling Environment) where ITU was named as moderator in 2008, and to those Action Lines where ITU has been named as partner.
- 1.3. A continuing challenge facing the Union is to remain a pre-eminent intergovernmental organization where Member States, Sector Members and Associates work together to enable the growth and sustained development of ICT networks, and to facilitate universal access so that people everywhere can participate in, and benefit from, the emerging information society. In this context, the Union must consider the following factors:

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<sup>3</sup> The Geneva Declaration, Geneva Plan of Action, Tunis Commitment and Tunis Agenda for the Information Society, available at [www.itu.int/wsis/](http://www.itu.int/wsis/)

- 1.3.1. the need to raise public awareness of the Union's mandate, role and activities as well as to afford broader access to the Union's resources for the general public and other actors involved in the emerging information society through the work done for and on behalf of ITU Member States and Sector Members, required to achieve the purposes of the Union while maintaining consistency with the provisions of the ITU Constitution and Convention;
  - 1.3.2. the need to make optimal use of the established scarce financial and human resources available for the Union's activities, in order for ITU to meet its responsibilities and challenges for the benefit of its membership, particularly developing countries.
- 1.4. More recently, convergence, combined with the evolution to all IP-based wireless and wired NGNs, provides tremendous opportunities for the telecommunication industry, but also significant challenges to Member States.<sup>4</sup> Convergence is the main driving force behind changes in ICT today. Convergence, brought about by technical advances applications at the network edges, is transforming relations between previously disparate telecommunications and media platforms. As a result, previously siloed (service-specific) technology platforms are now capable of supporting multiple voice, data and video services and applications. In some instances, this blurs previously defined service markets and gives rise to a need to review traditional policy and regulatory regimes, including public safety issues.
- 1.5. "Next-Generation Networks" or NGNs represent a fundamental change in telecommunication core and access networks, separating different service-related functions from transport-related technologies.<sup>5</sup> NGNs are in some cases intended to provide consistent, ubiquitous and reliable information and communication services to users. In other cases, NGNs just specify that transport is separated from services using the same transport. NGNs are a key future development in networks. However, due to differences in how NGNs are to be defined, there is still significant uncertainty as to whether existing policy and, where required, regulatory mechanisms are appropriate to ensure smooth migration to NGN, while maintaining an appropriate level of interworking and interoperability with legacy networks, while meeting security and quality of service requirements.<sup>6</sup> At the international level, one of these mechanisms could be the International Telecommunication Regulations.
- 1.6. The science of climate change has also benefited greatly from convergence. For example, fixed-mobile convergence will bring savings in the areas of dematerialization (see Section 5.1.3), flexible and mobile work arrangements. In addition, convergence could also help preserve power supplies through more efficient use of converged networks.
- 1.7. The deployment of broadband has raised a number of policy and regulatory issues<sup>7</sup>, including: how best to enable required investments; access to facilities and networks; whether regulation should be technology neutral for technologies such as XDSL, FTTH, HSDPA, WiMAX, etc. and/or cable providers and/or to the services that are operated across those access technologies; regulatory holidays; whether and/or how to apply universal access/service obligations and provisions, etc., among others.<sup>8</sup>

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<sup>4</sup> See for example, IMT Resolutions ITU-R 56 and 57 and several relevant ITU-R Recommendations on BWA, as well as relevant ITU-T Resolutions on NGN – GPON.

<sup>5</sup> See ITU's "Trends in Telecommunication Reform 2007: The Road to Next-Generation Networks (NGN)" which reviewed relating to the introduction of NGN, including best practice guidelines, available from: <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

<sup>6</sup> See, for example, "Trends in Telecommunication Reform 2007: The Road to Next-Generation Networks (NGN)", ITU, Geneva, 2007 and the GSR 2007 Best Practice Guidelines, available from: <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

<sup>7</sup> See, for example, "Trends in Telecommunication Reform 2005: Regulation in the Broadband World", ITU, Geneva, 2005 and the GSR 2005 Best Practice Guidelines, available from: <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

<sup>8</sup> See the module on New Technologies of the ITU-infoDev ICT Regulation Toolkit, at: [www.ictregulationtoolkit.org/](http://www.ictregulationtoolkit.org/)

- 1.8. NGN networks are expanding the potential of developing countries to participate more actively in the global economy. In order to stimulate investment in an era of convergence, governments should foster an enabling, pro-competitive and transparent regulatory environment for the development of new services and stimulate the deployment of infrastructure through all appropriate means, including tax incentives and subsidies.
- 1.9. The WSIS declared the formation of the Information Society as a global task in the new Millennium and adopted by consensus the basic principles of a society formation. The following principles were considered in the final documents of the WSIS as the most important development of Information Society infrastructure: building confidence and security when use of ICTs and Internet governance. The WSIS instructed the ITU to act as a Moderator/Facilitator when implementing decisions on these matters. The Internet, as a basic element of Information Society infrastructure, has been transformed from a scientific and tutorial instrument to a publicly-accessible global good and its governance should become one of the principal topics of Information Society agenda (Sections 29-30 WSIS Tunis Agenda for Information Society). Problems in Internet Governance should be solved in accordance with the arrangements noted in the final WSIS documents.
- 1.10. Challenges for the future include:
- a) Issues affecting networks, such as building confidence and security in the use of ICTs, access facilities and networks, efficient and effective access to and use of the frequency spectrum, universal access/service, interconnection and interoperability etc.<sup>9</sup>
  - b) Issues relating to users' experiences, such as Quality of Service (QoS) and quality of experience;
  - c) The institutional challenges and benefits of sector-specific regulation, and its relation with more general principles of competition policy in light of convergence.
  - d) The specific circumstances of developing countries, which may face additional challenges than those faced by developed countries;
  - e) Identity management for end-users, providers, devices and objects, which is increasingly viewed as essential for cybersecurity, infrastructure and consumer protection, and numerous other requirements..
- 1.11. This Secretary-General's Report is structured as follows: Part 2 considers the phenomenon of convergence in today's fast-paced digital age. Part 3 focuses on the core vision of NGNs and their larger implications. Part 4 examines some Internet-related public policy issues. Part 5 reviews a number of emerging telecommunication policy and regulatory issues. Part 6 discusses matters related to the ITRs.

## **2 AN ERA OF CONVERGENCE**

- 2.1. There are different views of what constitutes convergence. As per ITU-T Recommendation Q. 1761, 3.1 defines convergence as the coordinated evolution of formerly discrete network towards uniformity in support of services and applications. Convergence, coupled with the increase in communication traffic, is the main driving force transforming the information and communications landscape today. The spread of broadband and transition to IP-based

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<sup>9</sup> See the Radio Spectrum Module and Universal Access Module of the ITU-infoDev ICT Regulation Toolkit, at: [www.ictregulationtoolkit.org/](http://www.ictregulationtoolkit.org/)

networks have resulted in different forms of convergence, which are resulting in the vertical, as well as horizontal, integration of the market.

Fig.1. Development of horizontal market integration

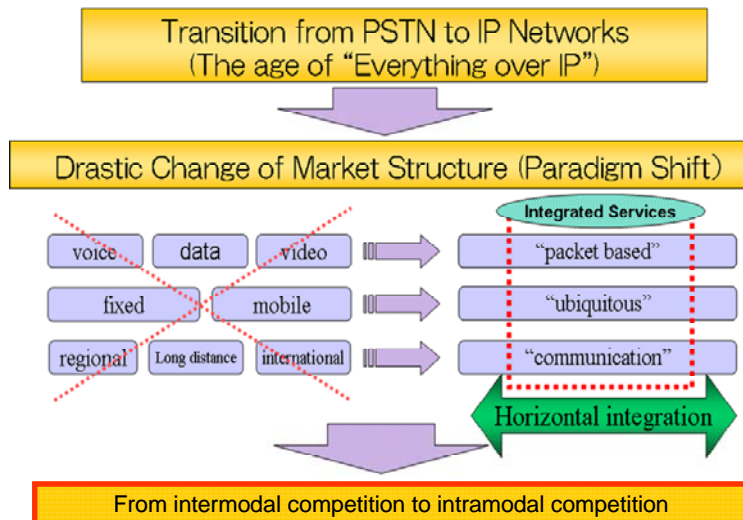
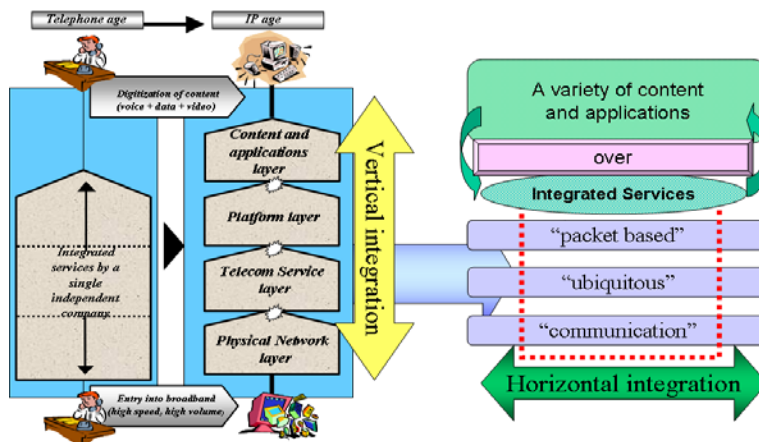


Fig.2. Development of vertical market integration



2.2. One of the most important forms of convergence is network convergence. Traditionally, audio, video, data or voice services were available over distinct network infrastructure and distinct terminal equipment, e.g., personal computers connected to the Internet, televisions connected to cable networks. In the ongoing shift to NGNs, networks and service applications are no longer necessarily tightly coupled. Network convergence refers to the increasing use of common technologies, and their use of IP and new wireless technologies.<sup>10</sup>

<sup>10</sup> See, for example, ITU's Trends in Telecommunication Reform 2007: The Road to NGN and the GSR 2007: Best Practice Guidelines for Next-Generation Networks (NGNs) Migration, at: <http://www.itu.int/ITU-D/treg/bestpractices.html>.



The Internet, and especially the end-to-end characteristic of the network, has proven to be a particular source of creativity and growth. Great care must be taken in considering the policy framework around convergence and other emerging issues in order to not interfere with the tremendous potential of creativity and innovation by users and their ability to freely use the network. The Internet's model must be respected in converged communications, so as not to disrupt the tremendous potential for creativity and innovation encouraged by the Internet.

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- 2.3. Further, old distinctions among network infrastructure, terminal equipment and the services and applications that are delivered over them are increasingly blurred. Today's services (such as voice services), no longer necessarily match a specific type of network or end-user equipment.<sup>11</sup> Innovation, in particular in Internet Protocol (IP)-based and wireless networks, has stimulated a wide array of new ICT services and devices. There is convergence at the applications level (e.g., Voice over Internet Protocol or VoIP).
- 2.4. Fixed-mobile convergence (FMC), currently referring to terrestrial use, was the first form of network convergence, with some FMC services starting as early as 1997. For ITU, FMC refers to the seamless integration between fixed and mobile over a single network and services accessible from a range of devices.<sup>12</sup>
- 2.5. Terminal equipment has also been subject to the phenomenon of convergence. Different devices are converging (e.g., mobile and Internet access devices, etc.). Mobile handsets can now be used to access the Internet, and personal computers to view video programming (either on demand or not). Audio (MP3) players are also now mobile phones, mobile phones are also digital cameras, and gaming consoles are now Internet-access devices. Not only are services now becoming independent of networks, but independent of devices, too, through developments such as "place-shifting" (i.e., where roaming users can access content on their home computers or servers).
- 2.6. As networks and technologies converge, so do the channels for the delivery of content. The business of blockbuster films is no longer only about making them available in cinemas, but also involves publishing content on official websites, blogs, chatrooms, social networking spaces and, in some cases, the launch of new video games. Talk shows and game shows now typically have active web campaigns and interactivity via SMS, email comments and/or voting. This increase of consumer-generated content, the spread of Machine to Machine (M2M) software as a service and grid computing may cause growth in future traffic and raise issues arising from the use of traffic management and prioritization technologies.
- 2.7. In addition to networks, content and devices, convergence is also having an impact on the corporate landscape. Faced with increased competition, service providers and network operators are diversifying their service portfolios to take advantage of technical convergence. In part, this is being achieved through mergers and acquisitions, but also through "multiple play" strategies that combine billing for different services (e.g., broadband, mobile, television, etc...). Meanwhile, regulators and policy-makers are exploring a range of sharing strategies, including infrastructure-sharing, spectrum-sharing and end-user sharing to enable timely investment in and deployment of advanced networks and foster affordable access to converged services by end-users.<sup>13</sup>

<sup>11</sup> See, for example, the proceedings of The Future of Voice workshop, January 2007, available at: <http://www.itu.int/osg/spu/ni/voice/meeting.phtml>

<sup>12</sup> For reference, see ITU-T Recommendation Q. 1761, 3.6 that defines FMC.

<sup>13</sup> More information on a range of sharing strategies may be found in the ten 2008 ITU Global Symposium for Regulators Discussion Papers on Six Degrees of Sharing at <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR08/papers.html>.



- 2.8. Convergence can be expected to have an impact on E-Government, because converged communication facilities can be used to disseminate information more quickly and efficiently. E-Government<sup>14</sup> is a term used to refer to the increasing use by governments of electronic means to facilitate communication with citizens, both from the citizen to the government (for example, electronic filing of forms) and from the government to the citizen (for example, websites containing information).
- 2.9. Convergence may have an impact on other services, including: education (e.g., tele-learning materials accessible through a variety of media, including free public digital libraries); health (e.g., centralized databases containing patient information accessible by specialists from different locations/disciplines for long-range diagnosis and consultations; ICT applications for e-health including location and tracking services of specialist equipment and machines in healthcare services); financial services (e.g., integrated trading platforms with real-time price information and electronic payment systems, accessible over different portals and communications media), including facilitating access to banking services for the un-banked in developing countries and payments from family members working abroad; and agriculture (sensor networks can help monitor machinery and irrigation systems to ensure environmentally-sustainable agriculture) and disaster warning systems using wide area telecommunication networks.
- 2.10. Capacity-building is also a key theme in the context of convergence. The skills and knowledge required in a converged environment are not the same as those required in the more traditional, vertically-separated environments that have been predominant up to now. The engineers who build, maintain, and operate converged networks, and services and applications built on converged networks, need to have cross-disciplinary training and experience. Such specialized human capacity resources will be more difficult to build and train, especially in developing countries. Capacity-building programs are already being adapted to these new requirements tailored to the needs of developing countries; see, for example, <http://www.itu.int/ITU-D/hrd/index.asp>.
- 2.11. One of the effects of convergence is the potential for competition among previously distinct service providers. For example, technology now facilitates a customer purchasing voice service not only from the traditional telecommunications provider as was traditionally done, but also from wireless, Internet service, cable and satellite providers. A similar analogy can be made with respect to data and video services.<sup>15</sup> As market structures change, disparate regulatory regimes that were created for distinct services and associated markets may need to be re-examined.
- 2.12. Convergence may also cause policy-makers and regulators to reassess their appropriate roles in a converged digital world. Institutions (e.g., regulators) and corporations are facing convergence in a broader sense, as are entire industries (e.g., computing, broadcasting and telecommunications). Policy-makers and regulators in many countries are adopting flexible approaches that allow continued technological advancement and minimal regulatory intervention. With existing variations in markets, infrastructure, policy and regulatory systems, and levels of development, it is certain that digital convergence is going to vary between countries. Solutions to address such issues will vary, depending on the policy and regulatory circumstances in each country.

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<sup>14</sup> A discussion of E-Government can be found in "A Handbook on Internet Protocol (IP)-Based Networks and Related Topics and Issues" at <http://www.itu.int/ITU-T/special-projects/ip-policy/final/index.html>. Specific initiatives can be found at: <http://www.itu.int/ITU-D/cyb/estrat/index.html>.

<sup>15</sup> See, for example, ITU's Trends in telecommunication Reform 2008: Six Degrees of Sharing, Chapter 1.

### 3 NEXT-GENERATION NETWORKS (NGNs)

3.1. There are many views of what constitutes Next-Generation Networks (NGNs) and a variety of NGN migration paths. The ITU defines a NGN as “a packet-based network able to provide Telecommunication Services to users and able to make use of multiple broadband, Quality of Service (QoS)-enabled transport technologies and in which service-related functions are independent of the underlying transport-related technologies. It enables unfettered access for users to networks and to competing service providers and services of their choice. It supports generalized mobility which will allow consistent and ubiquitous provision of services to users.”<sup>16</sup>

3.2. [NGN is not the successor to the Internet, it provides something different than the Internet. The Internet is a packet-based network, but it is an open network developed through interconnection of networks; service level agreements and authentication are handled bilaterally between autonomous providers and services; QoS is typically not implemented across network administrative boundaries and it depends primarily on applications for security and authentication. Innovation -- new applications and networks of the Internet -- is done through independent actions and driven by local needs and interests. The NGN and the Internet have different philosophies concerning the construction and operation of networks. The NGN's goal of high reliability of networking and core services must not impede the continued development of the open Internet.]

3.2. NGNs can on the one hand be viewed as network-operator managed broadband networks that integrate service provision to end-users over the all packet-based layers of transport, connection and, from upper levels, data, voice and video services. NGN architectures on the other hand also allow the separation of roles for different layers into passive network operation, active network operation and service provision. NGN investment characteristics and capabilities vary among e.g. commercial, municipality and utility actors. Operators are making NGN upgrades both to the *Core* (transport or backbone network) and to the *Access NGN* (serving the end-user, such as the fixed copper/fibre local loop or wireless access).

3.3. Whatever the definition or migration path, most modern networks currently in deployment are packet-based. The variety of services that may be delivered over NGNs will generally be broader than services delivered over legacy service-specific networks. The transition to NGNs may have implications for end-users, regulators, operators and service providers alike, especially with regard to competition and pricing, and raises various public policy issues including enabling the required investments, reliability, security and safety, as well as a range of regulatory issues.<sup>17</sup> The transition to NGNs presents many opportunities, challenges, innovative options and alternatives for the global ICT sector.

3.4. For operators and investors, NGNs may offer increased revenue streams and profitability. This may arise from the ability to provide a full range of service offerings as PSTN voice revenues decline and competition increases. In addition to growth in revenues, NGN operators are expected to benefit from greater productivity and associated cost savings due to economies of scale from the integration of existing networks and reductions in operating costs e.g., as local exchanges are eliminated or withdrawn. Network operators see NGN investments as a rational choice to meet evolving customer demand – especially as when

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**Comment [CB4]:** As we prepare for the WTPF 2009 we must be careful to not take a short term view, or one focusing on a narrowly defined technology. Although the NGNs offer a compelling model today, and are being increasingly deployed by network operators, we can be sure that the NGNs in ten years will be different from the ones anticipated today. Hence, ISOC believes the WTPF must bring together all stakeholders to focus on the desired policy outcomes that could be implemented to foster creativity in network evolution for the long term rather than narrowing down the discussion to any particular technical approach.

**Deleted:** [NGN (as defined by ITU) differs from the Internet. The Internet is another packet-based network, but it is an open network developed through interconnection of networks; service level agreements and authentication are handled bilaterally; it has no guarantee of QoS and it depends on applications for security and authentication. NGN and the Internet have different philosophies concerning the construction and operation of networks. It is necessary to realize a network environment in which the high reliability and integrity of NGNs and the autonomy of the Internet may coexist under appropriate conditions.]

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<sup>16</sup> ITU-T Recommendation Y.2001 (Study Group 13)

<sup>17</sup> Many of these issues were covered by the 2007 ITU Global Symposium for Regulators (GSR), the 2007 GSR Discussion papers on NGNs and the 2007 GSR Best Practice Guidelines for Next-Generation Networks (NGNs) Migration. All resources for the 2007 GSR are available at <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/index.html>

legacy networks reach the end of their life cycle, requiring equipment to be replaced. Indeed, investment in NGNs may boost the equipment manufacturing market considerably, including the customer premises equipment (CPE) market.

**3.5.** For customers, NGNs may respond to demands for bandwidth-hungry services and applications that require network performance to operate within a relatively narrow set of operating parameters (such as IPTV and VoIP<sup>18</sup>). They also may enable service delivery at work, home or on-the-go, together with the possibility for attractive pricing bundles for combined voice, data and video needs, across both fixed and mobile networks. It is important that bundling of services doesn't prevent competition between different service providers. Security will be an essential element to enable meeting such expectations.

**3.6.** NGNs may offer converged wireless, wireline and/or satellite broadband connectivity, as well as the use of Internet access devices that cost less than personal computers and laptops (e.g., by using dedicated Internet-connected set-top boxes connected to TVs), and may thus play a role in improving Internet availability, bridging the digital divide and increasing penetration rates.<sup>19</sup> The proliferation of "managed services" enabled through NGN should simultaneously expand the capacity available for general Internet purposes. In turn, encouraging NGN adoption should lead to broader and lower cost Internet capabilities. Developing countries could leapfrog directly to NGNs for the provision of voice, data and multimedia services at least for investments in new extensions to their networks. Triple-play offerings have the potential to open up television as a delivery platform to a far wider range of multimedia services for consumers. Similarly, business customers benefit from the security, flexibility, and cost-effectiveness of Virtual Private Networks and other innovative capabilities. The additional functionality of NGNs may help validate the economics of deploying IP-based networking by offsetting the lack of personal computers and other devices that can access the Internet in developing countries.

**3.7.** Governments, as well as consumers, stand to benefit from commercial broadband services. Government entities at all levels (e.g., local public safety entities) benefit from access to secured databases and to the Internet in times of emergency (in terms of improved interoperability and coordinated emergency response) and other routine e-government initiatives (in terms of increased efficiency). Where broadband availability is coupled with mobility, the provision of public services can be expanded to previously unconnected communities, particularly in developing countries.

**3.8.** Broadband availability is provided by different methods in different countries, the primary methods being implementation of xDSL and related technologies over the existing PSTN infrastructure, use of cable TV infrastructure, and roll-out of new infrastructure specifically designed for high-speed access (e.g., direct fiber-optic connections). The growing availability of wireless, as well as wireline broadband networks, has had significant enabling effects, but also require themselves significant installations of fiber networks that connect to the access points. A variety of terrestrial and space networks and services are also converging to provide similar types of applications using Broadband Wireless Access (BWA).

**3.9.** The deployment of NGNs is accompanied by a number of possible challenges, including the need for significant investment in core and access networks and inter-operability between existing networks and NGNs. This may require increased coordination amongst Standards

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<sup>18</sup> IPTV refers to the use of IP-based networks to transmit TV programs; VoIP refers to the use of IP-based networks to transmit voice communications.

<sup>19</sup> ITU's "Trends in Telecommunication Reform 2007: The Road to Next-Generation Networks (NGN)" covers some of the issues that the introduction of NGN poses for developing countries; see: <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

Development Organizations (SDOs). [The issues of conformance and interoperability testing, as well as associated certification, have been identified as a matter of interest to a number of developing countries.] In the migration phase, competitive operators are likely to face technical challenges as current points of interconnection are withdrawn.

- 3.11. The availability of broadband access may also impact end-user behavior. Networks to date have been developed based on the expectation that end-users mainly accessing webpage-based content from the Internet. However, changes in end-user behavior towards using these access technologies for a greater range of services (including voice, Video on Demand, peer-to-peer file sharing), as well as the change in the nature of the content available, may result in the need for networks to be dimensioned against different contention ratios on a per link basis [or other service quality standards](#). As the shift towards NGN-based delivery of all services takes place, network dimensions may need to move from an assumption of ‘bursty’ traffic associated with internet usage, towards one of extended periods of demand for high bandwidth rates, both from individual users, and from the user community as a whole. Without this shift, bottlenecks may inadvertently be created and end-user Quality of Experience perception may be significantly impacted.
- 3.12. Introduction of secure application services is another important challenge for NGNs. The separation of service-related functions and underlying transport-related layers, characteristic of NGN architectures, requires new security approaches. Traditionally, security involved user authentication, with its particular data and access rights to specific applications. The advent of distributed technologies, such as Service-Oriented Architecture (SOA) used in NGN, require a common view of data among different applications and the ability to manage trust across separate security domains. New security protocols could introduce new vulnerabilities, which must be well understood and adequately solved.
- 3.13. The need for greater flexibility in frequency spectrum may be considerably higher in case of convergence of fixed, mobile and broadcasting services. This could help to satisfy the growing demand for frequency allocation on the part of suppliers of broadband wireless access to NGNs.<sup>20</sup> This issue is on the agenda of the next World Radiocommunication Conference (WRC-11).
- 3.14. [In particular, the rise of “networks after NGNs” (such as Ubiquitous Networks) will integrate additional networks of converged devices with radical implications for network traffic, resources and security and reliability risks. “Smart” technologies using sensing modules attached to electric instruments will be used in USNs to manage the power consumption of all electric instruments within the network. Cybersecurity and data protection measures will need to be improved.]

#### **4 IP-BASED NETWORK-RELATED PUBLIC POLICY MATTERS**

- 4.1. The rapid expansion of IP-based networks has raised a wide array of public policy issues. The ITU in addition to other relevant entities in the international community has a role as stated in Resolution 102 (Rev. Antalya 2006) and as further indicated in the WSIS decisions and Council Resolution 1282 and as further indicated in WTSA Resolution 75. [With respect to how to handle these issues, after WTSA-08 and the adoption of Resolution 75, the Council

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<sup>20</sup> See also of the Radio Spectrum Management module of the ITU-infoDev ICT Regulation Toolkit, at: [www.ictregulationtoolkit.org](http://www.ictregulationtoolkit.org).

2008 adopted Resolution 1283 with respect to the creation of a dedicated group dealing with Internet-related public policy issues.]

4.2. [Considering the cited Resolutions, WTSA Resolutions 47, 48, 49, 50, 52, 60, 64, 69, and the Handbook on Internet Protocol (IP)-Based Networks and Related Topics and Issues<sup>21</sup>, it would appear that the following issues will be discussed in ITU in the future:

- a) Communication infrastructure (WSIS Action Line C2), including quality of service, reliability and telecommunication protocols;
- b) Building confidence and security in the use of ICTs (WSIS Action Line C5), including countering Spam and Cybersecurity;
- c) Naming numbering and addressing including ENUM, internationalized domain names, and the evolution of the numbering system and its convergence with IP systems/networks;
- d) Capacity-building and technical assistance;
- e) IP address allocation and encouraging the deployment of IPv6;
- f) Internet exchange points;
- g) International Internet Connectivity;
- h) Non-discriminatory access and use of Internet resources.]

4.3. Some of these issues identified above are national matters, to be dealt with by national authorities. However, many of these issues have international aspects. This is further discussed below.

4.4. The WSIS outcome documents contain text related to Internet Governance and in particular called upon the United Nations Secretary-General to:

4.4.1 convene a meeting of the new forum for multi-stakeholder policy dialogue, called the Internet Governance Forum (IGF).

4.4.2 start a process towards enhanced cooperation involving all relevant organizations in their respective roles... consistent with legal process and will be responsive to innovation. Such cooperation should include the development of globally-applicable principles on public policy issues associated with the coordination and management of critical Internet resources.

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<sup>21</sup> This list is drawn from the 2005 ITU publication "A Handbook on Internet Protocol (IP)-Based Networks and Related Topics and Issues", which was written to inform Member States, especially developing countries, about issues related to Internet Protocol (IP)-based networks, including the management of Internet domain names and related issues. It provides background information, but also identifies some key policy questions associated with the general use of IP-based networks (that is, of the Internet). See <http://www.itu.int/ITU-T/special-projects/ip-policy/final/index.html>

4.4.3. [Nevertheless, substantive discussions, some of which suggesting very significant changes in the present governance mechanisms for the Internet, on these issues continue. It is necessary to create an environment that enables governments, of particularly developing countries, on equal footing, to carry out their roles and responsibilities in international public policy issues pertaining to the Internet. [In this context, ITU can play a facilitating role.] While actions on the above paragraphs have already been started, some topics within the current mandate of the ITU could be the subject of further discussion in the ITU based on membership contributions, including the management of Internet resources, international Internet interconnection (that is, tariffs and accessibility), the importance of the creation of Internet exchanges, the multilingual Internet and diversity of participation in the Internet, the use of IP network identifiers and network neutrality.]

**Comment [CB5]:** There is an obvious risk of duplication with other forums' work, as these issues are already discussed elsewhere, such as in the IGF.

#### 4.5.1. Management of Internet resources

**Comment [CB6]:** These issues are only partially relevant to the ITU's mandate.

4.5.1.1. [The management of the Internet encompasses both technical and public policy issues and should involve all stakeholders and relevant intergovernmental and international organizations. There is consensus that the management of the Internet encompasses both technical and public policy issues and should involve all stakeholders, including governments and relevant intergovernmental and international organizations (see paragraph 35 of the Tunis Agenda). The WSIS outcome documents provide a representative cross-section of views on this issue. There is a variety of forums considering Internet governance issues. [However, there is a lack of consensus on certain specific issues: for example, what exactly the role of ITU and/or Member States should be with respect to administration of the root zone files and system, allocation of domain names and IP addressing. Many countries believe that at least some aspects of these issues are public policy matters that are, in principle, within the purview of governments, even if only as a "backstop" in case private sector governance mechanisms prove unable to meet national or internationally agreed goals, including security requirements. A balanced representation of the views of the international community on these issues can be found in the cited WSIS outcome documents and in ITU documents such as the "ITU Handbook on IP-based Networks and Related Topics and Issues".]

#### 4.5.2. International Internet Interconnection

4.5.2.1. ITU-T Study Group 3 has been studying the matter of international Internet interconnection for a number of years.<sup>22</sup> However, no consensus has been reached regarding the various matters being studied. There are three main lines of thought. Some hold that market mechanisms are working well and that market forces account for the observed prices of international Internet interconnections. Others hold that abuse of dominant power by incumbent, former monopoly, operators in developing countries results in artificially high costs, in some cases, for international Internet interconnections. Others stated that high costs in developing countries are due to the high costs of international links, not to abuse of dominant power. Others hold that abuse of dominant power by major multi-national telecommunication operators (based in developed countries) results in artificially high costs, in some cases, for international interconnections. Others recognize the valuable contributions that national and/or regional IXPs are making to improving access, reducing costs and promoting local and regional multilingual content. Further studies should be conducted in ITU-D and ITU-T, regarding how the

<sup>22</sup> See <http://www.itu.int/ITU-T/studygroups/com03/iic/index.html>



implementation of regional or national IXPs and the introduction of competition for international gateways can encourage infrastructure growth and development in order to reduce costs.<sup>23</sup>

#### 4.5.3. The Multilingual Internet

4.5.3.1. The Internet, and its host names, were initially developed in the United States and initially relied on a 7-bit character encoding that supported only a limited character set. As the Internet has expanded around the world, its protocols have been adapted to cater to a wide variety of scripts and character sets. Progress has been made in the work now underway to implement a diversity of scripts and character sets in the domain name system with Internationalized Domain Names (IDN). Deployment of IDN could contribute to the further development of cultural diversity and identity, linguistic diversity and local content. At the same time, the ITU-T has recently provided for similar internationalization of Object ID names.

4.5.3.2. As requested in Resolution 133 (Rev. Antalya, 2006) of the Plenipotentiary Conference, the ITU Secretary-General brought this Resolution to the attention of the Directors General of WIPO and UNESCO and requested the creation of an inter-agency Working Group to address issues related to the various aspects of Internationalized Domain Names (IDN) within the mandates of ITU, WIPO and UNESCO. In addition, at the Internet Governance Forum 2007, the ITU, ICANN and UNESCO announced collaborative efforts to forge international standards towards building a multilingual cyberspace with due account for national scripts of the six official languages in ITU and UN system in general. The Internet Corporation for Assigned Names and Numbers (ICANN) is now introducing a fast-track process for country-code IDNs concerning only Country code top-level domains which are technically ready to be implemented into the DNS. Collaboration between and among ICANN UNSECO, and ITU will be important. Work is also ongoing with respect to certain policy-related matters related to IDN, especially focused on the policy-related issues raised by their deployment. In accordance with its mandate, ITU should liaise and cooperate with appropriate relevant entities in this respect, recognizing the important work that is already underway in relevant entities.

4.5.3.2. Work is ongoing with respect to certain matters related to IDN, especially focused on the policy-related issues raised by their deployment. In accordance with its mandate, ITU will liaise and cooperate with appropriate relevant entities in this respect.

#### 4.5.4. Diversity of participation in the Internet

4.5.4.1. It has been stated that participation in the Internet (whether as users, or providers of content, or developers of standards, or providers of hardware and software) is generally more prevalent in developed than in developing countries.

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<sup>23</sup> ITU-D and IDRC prepared a joint report on the role of IXPs in Africa in 2004. This report, *Via Africa: creating local and regional IXPs to save money and bandwidth*, available at [www.itu.int/ITU-D/treg/publications/index.html](http://www.itu.int/ITU-D/treg/publications/index.html) may be considered by WTPF-09. The 2008 editions of Trends in Telecommunication Reform will also include a chapter on open access to international gateways.



4.5.4.2. [In terms of users, this is no longer the case, since very rapid growth of Internet usage in China has resulted in China being home to the single largest number of Internet users in absolute terms. It remains the case, however, that the penetration rate of Internet users in developed countries is far higher than the penetration rate in most developing countries (where mobile telephony continues to have penetration rates ten or more times that of Internet, and is typically growing faster than the Internet).]

4.5.4.3. [Various reasons have been advanced to explain this phenomenon. There is general agreement that historical factors are important: the Internet was first developed in the United States, so naturally, it was first used in that country and only later started to expand to the rest of the world.]

4.5.4.4. [However, questions remain regarding whether the structure of Internet governance mechanisms, Internet standardization bodies, and the market for interconnection, hardware, and software is such that barriers have arisen discouraging participation by developing countries. Some hold that market mechanisms are working properly and that current participation rates simply reflect optimal distribution of resources, in accordance with efficient markets. Others hold that, at least in some cases, dominant players influence markets, with the effect of discouraging developing country participation. Some hold that these dominant players, if they exist, are developed-country early-adopters of Internet technologies; others hold that they are developing-country incumbent traditional telecommunications operators and related organizations.]

4.5.4.5. There is general consensus that an enabling environment is crucial to the development and deployment of Internet infrastructure and secure services. Development of both individuals and organizations in developing countries by providing educational and training opportunities could assist with increasing meaningful and diverse access to the Internet and Internet-enabled services. There are numerous specific projects at the national level that result in increased access to the Internet by consumers in developing countries.

#### **[4.5.5. Network neutrality**

4.5.5.1. The Internet was created in a cooperative environment, as a best effort network available to all. At the time, issues of restrictions on the kinds of equipment attached and on the modes of communication allowed did not arise and the aim was to ensure that it was as open as possible. Subsequently, thousands of electronic communications networks have used common protocols to form the Internet and this has allowed innovation at the application layer. In part due to its architecture, it has proved to be a powerful engine for economic growth and market innovation. These characteristics give users the freedom to retrieve content of their choice choosing applications. Throughout its existence, application providers have always had to pay for their content to be hosted. Different hosting arrangements cost different amounts, and offer differential quality of service to the end-user [[This open and non-discriminatory environment has allowed new companies to appear, innovate and grow. Some argue that this environment is an essential part of a bottom-up innovation model, on which Internet growth is based (see Res. 69 of WTSA)].

4.5.5.2. Some of the innovative services are time-critical and result in a best efforts service being inadequate to make the service usable. Moreover, it is forecast that a range of new applications are likely to emerge that will benefit from different quality of service, including video-streaming services. Increasing capacity and bringing about innovation at the network layer will require substantial investment by communications providers both large and small. Multimedia content, for instance, which is a large consumer of bandwidth requiring high quality of service, should be charged appropriately. Peer to peer traffic can be difficult to manage in the borders of the network. Technical solutions could include packet inspection, filtering and traffic shaping. Nevertheless, giving priority or privileges to a particular data flow would reduce the quality of service for the remaining applications. Many of these applications can cause impact on the traffic flow, in such a way that broadband providers have network challenges to overcome, managing the traffic using the best existing practices. Considering that most of broadband providers are big telecommunication operators, with significant market power, they could use these practices to discriminate some Internet applications and content providers, particularly those belonging to competitors.

4.5.5.3. Technological developments will increasingly allow the inspection of packets (for example, to identify the type of traffic being carried) and of payloads (the actual content being carried). In the hope of preserving business models based on selling copies, content rights-holders are seeking to ask ISPs to perform content monitoring in order to recognize the nature of communication. National authorities often ask for information relating to subscribers of services (other than traffic or content data) in order to undertake criminal investigations, including in relation to alleged crimes and proceedings concerning criminal offences related to computer systems, as well as in relation to national security concerns. A distributed global Internet traffic monitoring system has been suggested to facilitate the rapid detection of any abusive network manipulation as well as numerous national and regional data capture and retention initiatives.

4.5.5.4. The diverse interests of the different actors involved in Internet content, applications or services raise complex issues for public policy-makers. It is important to protect the rights of network users, operators and service providers, as well as diversify their offerings in a competitive market. This need does not mean that infrastructure and service providers can use unduly or uncompetitive discriminatory and or excessively invasive practices. Providers can use adequate management practices with minimum interference on the network or platform, in such a way to maintain the transparency and openness of the Internet.]

**Comment [CB7]:** Once again, this section would have required further focus. The theme of the WTPF 2009 is Convergence and Emerging policy issues, a theme already very broad and complex. ISOC would have supported selecting only one emerging policy issue related to convergence such as **ICT and Public Safety or Public Warning Systems**. The WSIS Declaration of Principles has already highlighted the need to pay special attention to conditions that pose severe threats to development, such as natural disasters. The WSIS Action Plan goes on to make a specific call to establish monitoring systems, using Information and Communication Technology (ICT), to forecast and monitor the impact of natural and man-made disasters particularly in developing countries, least developed countries and small economies.

## 5 EMERGING TELECOMMUNICATION POLICY AND REGULATORY ISSUES

### 5.1. ICTs and the Environment

5.1.1. The increasingly pervasive use of ICTs—combined with the growth of always-on IP-based networks and services—is giving rise to a number of emerging ICT policy issues, which governments, service providers and users alike are struggling to address. In particular, means should be found to promote investment in new infrastructure and build capacity,

especially in developing countries. An emerging policy issue to be addressed is the impact of ICTs on the environment. ICTs have the potential to make a positive impact on the environment. ICTs currently represent only 2.5 to 3.1 per cent of greenhouse gas emissions,<sup>24</sup> but could contribute significantly to addressing climate change by contributing to the reduction of emissions through increased energy efficiency in other sectors.

- 5.1.2. ICTs can increase the energy efficiency of products by creating “smarter” products that control their own energy outputs, and conserve energy when not in use. Optimal examples (in terms of energy savings and monetization) of “smart products” include smart buildings (including smart homes), industrial motor optimization, smart grid and efficient logistics and supply chain.
- 5.1.3. ICTs enable online delivery of books, music, video and other multi-media content which can protect the intellectual property rights of content creators. In addition, in-person meetings that rely on the physical presence of people can be replaced by virtual conferences, online training events and other ICT-enabled meetings. ITU-T standards for digital compression (such as the H-series for multimedia, including H.264/MPEG-4 AVC) and ITU-T and ITU-R Recommendations for broadband access networks (such as the ITU-T G-series, including DSL standards, the ITU-R BO, M, S series for radio access) are enabling this transition to take place, which may have the additional important benefit of reducing pollution caused by physical transportation of persons or content-based products.
- 5.1.4. ICTs can be effectively employed in telecommuting. Increased reliance on telecommuting can potentially lessen pollution outputs and help consumers avoid escalating fuel costs. Telecommuting can be interwoven into the work experience through data, voice and video applications over IP for webcasts and teleconferencing.
- 5.1.5. Member States can encourage use of ICTs to bolster international efforts to find solutions to the problem of shortage in food. ICTs are gaining importance in addressing climate change and the food crisis; on these issues, ICTs are part of the solution, not part of the problem.<sup>25</sup> One example of ICTs mitigating the food crisis is the use of RFID to manage food inventories and monitor shipments to ensure efficient logistics. Additionally, ICT applications can give farmers the ability to predict weather and farming conditions with greater efficacy. ICT applications also enable farmers and fishermen to determine how best to deliver food to the market, by effectively and efficiently communicating with markets and colleagues. Sensor networks may also be used to monitor farming machinery and irrigation systems, to ensure sustainable and environmentally-friendly agriculture, especially where sensor networks are IP enabled and accessible globally.
- 5.1.6. Further, enhanced use of ICTs can help to mitigate the effects of natural disasters. Use of ICT during emergency and disaster situations may include broadcast sound and television systems, different mobile radiocommunication systems, and satellite systems that warn the public of dangerous weather events, aircraft pilots of storms and turbulence, and disseminate information for government and military aid providers.
- 5.1.7. The WSIS Declaration of Principles also highlighted the need to pay special attention to conditions that pose severe threats to development, such as natural disasters. The WSIS Action Plan made a specific call to establish monitoring systems using ICTs to forecast and

<sup>24</sup> The Climate Group/GeSI report: “Smart 2020: Enabling the low carbon economy in the information age”.

<sup>25</sup> Statement by ITU Secretary-General Hamadoun I. Touré to the third annual meeting of the UN Global Alliance for Information and Communication Technologies and Development (GAID), held in Kuala Lumpur, Malaysia, from 18-20 May 2008.

monitor the impact of natural and man-made disasters particularly in developing countries, least developed countries and small economies. Collaborative actions are necessary to assure that standards-based, all-media, all-hazards public warning becomes an essential infrastructure component available to all societies worldwide. It is essential and urgent to provide an enabling environment in which stakeholders everywhere can cooperate to bring the benefits of ICT applications to the area of disaster prevention.

## 5.2. Regulatory and policy issues raised by NGNs

- 5.2.1. In response to the technical phenomenon of convergence, government and regulatory agencies are exploring if there is a need and if so how to address the regulation of traditionally separate networks and services and to promote technological neutrality. A number of national regulatory authorities around the world have combined institutional frameworks for infrastructure and content (e.g., the United Kingdom and Switzerland) and/or are considering multi-sector utility regulation (telecommunications, power, water, etc.). A shift away from sector-specific regulation to general principles of competition policy is increasingly favored.
- 5.2.2. For regulators and policy-makers, NGNs may present an opportunity to analyze how regulatory frameworks could be revisited to further promote competitive environments designed to drive innovation and investment and foster affordable access to ICTs in order to realize the goals of the global Information Society.<sup>26</sup>
- 5.2.3. In general, regulatory frameworks which were initially service-oriented (predominant in a traditional circuit-switched environment) are no longer appropriate for an environment where multiple services can be offered over a single platform. As services converge, existing market and service definitions used for authorization or licensing and market analysis may not simultaneously encourage new investment by existing participants and facilitate entry by efficient new market players. In addition, new dominance-determination reviews may have to take account of the development of horizontal and vertical market integration: for example, where FMC offers the possibility of dominant fixed and dominant mobile carriers uniting to exercise market dominance, or where vertical integration enables market dominance not only in the physical network and telecom service layers, but also in the platform and content/application layers. At the same time, convergence such as that enabled by NGN may lead to increased competition, for example where new market players are authorized to enter the market or where diverse market players compete to provide services that consumers may treat as the same but which are actually provided on a range of different platforms (for example, where fixed and mobile networks compete to provide converged voice services). Implementation of public policies (including security and safety) may require investments when applied to converged packet-based networks. Likewise, universal access/services practices may have to be updated for the converged environment, and dispute settlement provided for possible new kinds of disputes.
- 5.2.4. [Since NGNs represent to some extent the confluence of the Internet and traditional telecommunication worlds, many regulators and policy-makers are exploring whether an NGN regulatory framework should be regarded as a choice between two different regulatory approaches, a hybrid system, or an entirely new model. This is especially important when considering NGN interconnection and access issues (such as access to network and service

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<sup>26</sup> See ITU's Global Symposium for Regulators 2007 on The Road to Next-Generation Networks (NGN) which reviewed many issues relating to the introduction and upgrade to NGN, including best practice guidelines on NGN regulation, available from <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

interfaces, access between layers in a network, access to platform features, application features and terminal layers), as well as frameworks for calculating interconnection charges. Since traditional circuit-switched telephone networks, and IP-based networks like NGNs and mobile networks are likely to co-exist, it is important that regulators work to achieve competitive neutrality in order to minimize or eliminate opportunities for regulatory arbitrage. Regulators strive to develop regulatory frameworks that balance the need to promote investment and innovation, especially in competitive and diversified access infrastructure with the concern that NGNs could create new competitive bottlenecks or lead to vertically integrated monopolies in the absence of regulatory intervention. Thus, the need for specific regulation of NGNs may need to be evaluated in terms of the costs and benefits of such regulation under particular circumstances. Monopoly in broadband access provision can be avoided by promotion of infrastructure-based competition between different players such as telcos, cablecos and utilities.]

- 5.2.5. For example, regulators and policy-makers may wish to evaluate the extent to which solutions enhance, rather than restrict, innovation and investment in a dynamic environment of rapid technological change.<sup>27</sup> Likewise, they may wish to evaluate the extent to which proposed regulations address actual rather than potential market failures.<sup>28</sup>
- 5.2.6. [There are also various regulatory issues associated with areas such as data protection, Internet numbering, naming, addressing and identification, conformance and interoperability testing and associated certification, which are necessary to ensure reliable, secure and interoperable infrastructure. As a result, regulators may wish to consider whether and how to ensure certain features inherent in traditional telecommunication networks (such as emergency services, secure communication and lawful interception) should continue to be available in the migration to NGNs.]
- 5.2.7. In addition, the large scale of investment required to build NGNs, coupled with the need to ensure revenue flows in a constantly shifting environment, may also lead to a rise of disputes between market players competing for business opportunities. Likewise, convergence may lead to new areas of dispute. Failing to resolve disputes effectively and efficiently may restrain, and in developing countries may even prevent, sector development.
- 5.2.8. The many changes brought about by the transition to NGNs give rise to the need for capacity-building at all levels (users, operators, regulators and policy-makers), so that citizens can fully experience all the benefits of the global information society.<sup>29</sup>

### 5.3. Strengthening trust and security

- 5.3.1. The development of ICT and cyber-space has promised common prosperity for mankind, but various adverse effects have been spreading more quickly as the network expands. Recently, serious problems like pornography, virus, hacking, cyber-terrorism, and the exposure of private information have threatened the confidence and security of cyber-

<sup>27</sup> See, for example, ITU's "Trends in Telecommunication Reform 2007 on The Road to NGN, Chapter 5.

<sup>28</sup> See ITU's "Trends in Telecommunication Reform 2007 on The Road to Next-Generation Networks (NGN)", which reviewed many regulatory issues relating to the introduction of NGN in addition to the Global Symposium for Regulators (GSR) best practice guidelines available at <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

<sup>29</sup> See ITU's "Trends in Telecommunication Reform 2007: The Road to Next-Generation Networks (NGN)" which reviewed many issues relating to the introduction of NGN, including best practice guidelines, available at <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/index.html>.

space and their destructive characteristic is the foremost challenge to be met. Confidence and security in using ICTs is one of the key principles of building an information society open to everyone, expressed in the WSIS outcome documents. Efforts in this direction should be undertaken to support expanding international cooperation.

5.3.2. Para. 35 of the WSIS Geneva Declaration of Principles states that strengthening the trust framework, including information security and network security, authentication, privacy and consumer protection, is a prerequisite for the development of the Information Society and for building confidence among users of ICTs. A global culture of cybersecurity needs to be promoted, developed and implemented in cooperation with all stakeholders and international expert bodies. In addition, it must take into account the level of social and economic development of each country and respect the development-oriented aspects of the Information Society. Para 36, while recognizing the principles of universal and non-discriminatory access to ICTs for all nations, supported the activities of the United Nations to prevent the potential use of ICTs for purposes that are inconsistent with the objectives of maintaining international stability and security - and may adversely affect the integrity of the infrastructure within States - to the detriment of their security. It declared also the necessity to prevent the use of information resources and technologies for criminal and terrorist purposes, while respecting human rights.

5.3.3. Action line C5 «Building confidence and security» of Geneva Action Plan provides for promoting cooperation between the governments at the United Nations and with all stakeholders at appropriate fora to address different information security and network security issues as well as to encourage the interested countries to contribute actively to the United Nations activities to build confidence and security in the use of ICTs.

5.3.4. The ITU Activity Lines to strengthen confidence and security are also defined by UN General Assembly Resolution 62/17, «The achievements in informatization and telecommunication spheres in the context of international security» (first of all in the part concerning public infrastructure security); Resolution 130 «The strengthening of the ITU role in the building confidence and security when using ICTs», adopted by the ITU Plenipotentiary Conference in 2006; Doha Action Plan, its Program 3 «E-strategies and applications on ICTs basis» and Resolution 45, «The arrangements to facilitate the cooperation in cybersecurity including the fighting against spam », adopted by the World Telecommunication Development Conference in 2006; «Cybersecurity Global Agenda», initiated by the ITU Secretary-General H. Toure; by other ITU documents. In particular, Resolution 130 notes that the ITU as an intergovernmental organization, where the private sector takes part in its activities, has all the conditions to play an important role together with other international organizations and stakeholders in countering the threats and exposure, which affect the efforts for building confidence and security when using ICTs. PP-06 adopted the decision to assign high priority to this activity in the ITU framework according to its competence and experience.

### **5.3.5. Identity Management (IdM)**

5.3.5.1. An essential mechanism for strengthening trust and security is the implementation of identity management capabilities that can provide appropriate levels of assurance in the identities of providers, end-users, and objects (e.g., terminal devices, network elements, and executable software). These capabilities are integral in implementing other objectives described below. ICT network IdM capabilities were initially fashioned through joint

ITU-T and ISO activity for Open Systems Interconnection twenty years ago, and some of the tools like X.509 digital certificates remain essential elements of trust and security today. New efforts in the ITU-T such as the X.1250 recommendation for global IdM trust and interoperability provide a baseline framework for tomorrow's IP-based network infrastructures and services, and the effective implementation of the recommended capabilities gives rise to significant policy issues.

### 5.3.6. [Child Protection

5.3.6.1. Child protection against online exploitation, in particular, has become a pressing concern.<sup>30</sup>

The online exploitation of children and child pornography are the alarming problems. In addition, inappropriate content that can be delivered to minors includes, *inter alia*, pornography, online games, video or audio material that are violent or sexually explicit, gambling, spam containing adult content etc. **There are various risks for children, such as those implicated in a crime using mobile phones and bullying on Bulletin Board Systems. In particular, the use of mobile phones makes it possible for children to access the Internet without their parents knowing it, so it is difficult for parents to suspect that their children access the Internet and risk harm.** Although the definition of what constitutes illegal content and rules concerning its distribution remain the responsibility of individual Member States, the cross-border nature of IP-based networks calls for measures, including international regulations to reinforce cooperation and promote the interests and capabilities of youth. **Measures should be taken, in particular, such as encouraging Media Literacy among parents and children and filtering services. In this regard, it will be a great benefit to share among the governments and the private sectors of each country the views and experiences of the best practice for tackling child protection against online exploitation. ]**

### 5.3.7. [Personal privacy and the protection of data]

5.3.7.1.[ The pervasive nature of networks and information poses a threat to the protection of data. A concerted global effort is required to foster trust in networks, in the form of technical, market, and organizational mechanisms. ]

5.3.7.2. [Strategies and mechanisms for the protection of data and privacy in a networked world are wide-ranging and typically ad-hoc, i.e., they are put into place after networks and services have been deployed. Calls are being made to build these priorities into the very process of technology design.]

5.3.7.3. [Digital identity management solutions may provide the capability to manage and protect users' data, as well as offer user consent options and choices consistent with the specific context. Other important principles include transparency, notification, accountability and data minimization.]

5.3.7.4.[ With the progress of IT in assisting socio-economic activity, the growth and expansion of ICTs, and particularly the Internet, the expansion in market size of Application Services Providers (ASPs), and the diversification of user-transmitting network applications, social structure increasingly depends on networks. There is a need for a secure and safe communication environment that everyone can use with ease. Despite these benefits, it is becoming impossible to expect users themselves to do everything necessary to protect their

<sup>30</sup> As noted in Resolution 38 of the Doha Action Plan and paragraph 24 of the Tunis Commitment.



privacy and personal data and concerted and coordinated efforts at global, regional, national and local level, are required to foster trust in networks, in the form of technical, market, and organizational mechanisms. ]

5.3.8. **[Digital rights]**

5.3.8.1. [The rapid spread of digital networks and storage make the replication of data and content fast, easy and inexpensive. However, the risks of the illegal distribution of content may increase as well. Effective Digital Rights Management (DRM) tools are required to tackle the explosion in online content, in order to address the need for rewarding content creators, while fostering the fair distribution of content in the public interest in a global perspective. Particular care should be taken to prevent the abuse of these tools by operators, equipment manufacturers or content distributors. ]

5.3.8.2. On the other hand, it seems reasonable to grant some particular derogation on digital rights, for instance, when used by disabled persons, educators or for preservation purposes. These exceptions are sometimes considered in national legislations. Nevertheless, there is no consensus about the circumstances and on which degree these exceptions should be applied.

5.3.8.3. In a similar way, some argue that current DRM policies have a structural, inherent tendency to escalate the discrepancy between developed and developing nations. In a global perspective, there would be an increasing imbalance between right holders and users of content. In consequence, there is still a strong debate on equity and fairness of the global policies presently prescribed for the protection of digital rights

5.3.8.4. [Enabling the seamless distribution of digital content, regardless of the type of transmission configurations, is important in terms of competition policy and the development of digital content. It is necessary to consider rules which are able to keep a balance between appropriate compensation for creators and the interests of consumers.]

5.3.9. **Cybersecurity**

5.3.9.1. Building security in the use of ICTs is a highly significant priority. Cybersecurity necessitates a dynamic and flexible response to continuously changing threats. At the national level it involves the development of national frameworks for the application of available technical, legal and regulatory tools by end-users, industry and Government, as well as continuous effort in capacity-building, awareness raising and prevention. At the regional and international level, cybersecurity needs strengthened cooperation and coordination between the different actors, as well as support for information-sharing and capacity-building in developing countries. Given these aims, the WTPF could represent an opportunity to: define a common view on what are the principal areas of threat; consider how to establish a mechanism to share regional and international best practices; and develop common initiatives such as the preparation of guidelines best practices for government and private sector cooperation at regional and international levels in the prevention, detection and response to the misuse of ICTs. It is important to disseminate among telecommunication network and Internet network users the code of conduct in cyberspace.

5.3.9.2. Taking into account the PP-06 decision stated in Resolution 130 to give the high priority in the ITU to the work related to building confidence and security when using the ICTs, at

WTPF it will be necessary to discuss the issue concerning the government moving to develop the international legal document (principles, code of conduct in cyberspace), where the existence of the threats package to cybersecurity should be reflected and the relevant countermeasures should be foreseen.

5.3.9.3. Security is also a vital issue for telecommunication operators. In this respect, international best practices on the compatibility of technological solutions on a global scale would be desirable, including recommendations on collaboration among operators and with regulatory or law-enforcement authorities on the basis of the national legislation on undesirable information resources (including, for example, extremist websites, etc), as well as respect of attack resources on telecommunication network security and information transmitted over them. These best practices should provide support for the design of a well-balanced system of investigative instruments, as well as related safeguards and the protection of fundamental human rights, assuring collaboration between law enforcement and ISPs.

5.3.9.4. It is important to reach a consensus in major areas concerning security threats. In this regard, during this process, it is necessary to make assumptions about the future ICT usage environment and consider threats to various networks (such as NGNs), as well as to review specific threats of today's world. For example, given the number and types of, devices that can be connected to IP-based networks are multiplying and diversifying. To ensure improved security for these devices, more reliable and user-friendly encryption and authentication methods are needed.

5.3.9.5. The WTPF should agree an opinion on these matters, taking into account ITU's significant current work on the topic, in the Sectors and in the General Secretariat, and the instrumental mechanisms which ITU as a UN specialized agency could provide.

#### **[5.4 Regulatory and Policy issues related to radio-frequency spectrum and satellite orbits**

5.4.1 Use of the limited natural radio-frequency spectrum and satellite orbit resources raised a number of specific regulatory and policy issues in view of the convergence between different radiocommunication services (mobile, fixed, broadcasting) and the development of new radio technologies, resulting in an increasing demand for radio-frequencies to implement both terrestrial and space new applications.

5.4.2 Previous ITU World Radiocommunication Conferences (WRC-03 and WRC-07) already identified the need for a review of the international spectrum regulatory framework in order to accommodate these evolutions and studies are on-going for the preparation of the next WRC in 2011.<sup>31</sup>

5.4.3 Taking due account of the development of new radio technologies, such as software defined radio and cognitive radio systems<sup>32</sup> or the exponential proliferation of Short Range radio Devices,<sup>33</sup> which are used nowadays or in a near future in many different new radio applications, it was decided to continue the development of concepts and procedures for

<sup>31</sup> See WRC-11 Agenda in Council 2008 Resolution [WRC-11-Agenda, Document C08/4 Annex B].

<sup>32</sup> See WRC-11 Agenda item 1.19 and Resolution 956 (WRC-07).

<sup>33</sup> See WRC-11 Agenda item 1.22 and Resolution 953 (WRC-07).

enhancing the ITU Radio Regulations (RR).<sup>34</sup> These new radio technologies are very promising and would provide new possibilities for different and probably more efficient uses of radio-frequency spectrum/satellite orbit resources. However, their implementation raises a number of regulatory and policy issues, such as: a) the continued relevance of the “historical” RR definitions of radio services in view of their convergence and of their ability to accommodate new radio applications in a technology-neutral manner, b) the identification of the best mechanisms for frequency allocations to those services within particular geographical areas, c) the consideration of the associated national regulatory and economical mechanisms for the attribution and licensing of frequency assignments and their monitoring and inspection in order to minimize the risks of disputes, d) the analysis of Electro-Magnetic Compatibility (EMC) between existing systems and those using these new technologies with, in particular, the necessary protection of socially desirable services (e.g., safety of life, weather forecast) or of international services provided by satellites.

5.4.4 Enhancing the international spectrum regulatory procedures is also of particular importance for the future development of satellite communications, as the situation stands at the moment, procedures may be put in jeopardy by some behavior which would limit the development of new satellite projects. In addition to regular considerations of the application of ITU basic principles and RR procedures related to the satellite frequency registration and use,<sup>35</sup> there is a pressing need to take steps to ensure and increase the rational, efficient and economical use of the orbit/spectrum scarce resources. While there is no real incentives and obligations to give up underused orbit/spectrum resources or update satellite network parameters recorded at the ITU to reflect planned operations, the interests are quite strong in reserving (and thus freezing) spectrum regardless of one’s own real future needs, thus denying de facto access to new entrants. The existing enforcing mechanisms to ensure that a satellite system is operating in accordance with recorded parameters are based mainly on goodwill and international cooperation. When goodwill is linked to financial consequences, such enforcing mechanisms tend to be disregarded. Satellite communication systems, with their distinctive characteristics, have huge potential to offer promising high capacity transmission capabilities to connecting the world. Moreover, communications by satellite could be the only access means available in some rural and remote areas. To achieve that ITU commitment, governments, international organizations, private and public sectors have to ensure that ITU can continue carrying out its vital activities embedded in the ITU Constitution (see Art 44 and 55 of the ITU Constitution) of recording frequency assignments to provide international recognition for the use of radio-frequencies and orbital positions in an interference-free or rather interference-controlled environment after successful bi-lateral or multilateral coordination as appropriate.]

## **6 [MATTERS RELATING TO THE] INTERNATIONAL TELECOMMUNICATION REGULATIONS**

6.1. The International Telecommunication Regulations (ITRs)<sup>36</sup> are a treaty-level instrument of the ITU. The ITRs establish general principles relating to the provision and operation of international telecommunications. They facilitate global interconnection and interoperability of telecommunication infrastructure, underpin the harmonious development and efficient operation of technical facilities, promote the efficiency and availability of international telecommunication services and facilitate billions of dollars in settlements.

<sup>34</sup> See WRC-11 Agenda item 1.2 and Resolution 951 (Rev. WRC-07).

<sup>35</sup> See Plenipotentiary Resolution 86 (Rev. Marrakesh, 2002), WRC-11 Agenda items 7 & 8.1 and Resolutions 80 and 86 (Rev. WRC-07).

<sup>36</sup> See the full text of the ITRs at <http://www.itu.int/ITU-T/itr/files/ITR-e.doc>

6.2. The current instrument is the successor of a long series of instruments, dating back to the original creation of the ITU in 1865. The immediate predecessor of the current instrument consisted of two separate treaties: the Telegraph Regulations (1973) and the Telephone Regulations (1973).

### 6.3. History of review of the ITRs

6.3.1. The ITRs have remained unchanged since coming into force on 1 July 1990, but remain relevant despite rapid and far-reaching technological change and the widespread liberalization of telecommunication markets, through privatization and competition. In many countries, the role of government has evolved from being an operator of analog voice telephony services to the policy-maker and regulator of digital convergent multimedia services. Although the pace of change has varied between countries, the liberalization of telecommunication markets has been a common trend in both developed and developing countries worldwide.

6.3.2. Issues concerning the need for and scope of review of the ITRs were considered by the ITU at its Plenipotentiary Conferences, held in Minneapolis (1998) and Marrakech (2002), but consensus to establish, scope and implement a review has been difficult to achieve, due to the variety of perspectives on the ITRs held by ITU Member States.<sup>37</sup>

6.3.3. The Plenipotentiary Conference 2006 (PP-06) made substantial progress, embodied in Resolution 146 (Antalya, 2006) Review of the International Telecommunication Regulations, by reaching consensus on a review process of the current ITRs that respects the divergent opinion among Member States regarding the future treatment of the ITRs.

6.3.4. Resolution 146 states that:

in order for the ITU to maintain its pre-eminent role in global telecommunications, it must continue to demonstrate its capacity to respond adequately to the rapidly changing telecommunication environment;

there is a need to build broad consensus on what could appropriately be covered in the ITU treaty framework, within its standardization activities, and within its development activities;

it is important to ensure that the current ITRs are reviewed and, if deemed appropriate, revised and updated in a timely manner in order to facilitate cooperation and coordination among Member States and to reflect accurately the relations between Member States, Sector Members, administrations and recognized operating agencies; and

the WTPF has historically provided an appropriate venue for discussing global and cross-sectoral issues of high concern to the ITU membership.

6.3.5. Resolution 146, recognizing the extent and complexity of discussions on the ITRs since 1998, resolves that the current ITRs should be reviewed and, *inter alia*, that:

the ITU-T should undertake a review the existing provisions of the ITRs, engaging with other sectors as may be required, with ITU-T as a focal point;

<sup>37</sup> Information on discussions prior to the 2006 Plenipotentiary Conference can be found at: <http://www.itu.int/ITU-T/itr/index.html>

the fourth WTPF should consider emerging policy and regulatory issues with respect to international telecommunication networks and services for the purpose of understanding them and possibly developing opinions as appropriate; and

the WTPF should prepare reports and, where appropriate, opinions for consideration by Member States, Sector Members, relevant ITU meetings and Council;

a World Conference on International Telecommunications (WCIT) should be convened in 2012 at ITU on the basis of recommendations arising from this separate process of review.

6.3.6 Thus, Resolution 146 envisages a process, building on previous discussions where applicable, of two separate and distinct reviews to deal with existing ITR provisions and new and emerging international telecommunication issues, respectively.

6.3.7. The ITU-T review is currently being carried out by an expert group, in accordance with TSB Circular 146.<sup>38</sup>

#### 6.4. **New challenges for the ITRs**

6.4.1. A number of Member States contributed to the work of the 2004-2005 Council Working Group on the ITRs.<sup>39</sup> Some of these contributions identified potential new issues for discussion in the context of the review of the ITRs. However, there was no consensus on which, if any, of these issues should be retained for further discussion. Per Resolution 146 (Antalya, 2006), the WTPF should consider new and emerging policy and regulatory issues, which may be relevant to a review of the ITRs.

6.4.2. The issues identified by Council Working Group on the ITRs are summarized in Annex 3 of its Report of the Council Working Group on the ITRs, which is found in Council document C05/EP11.

6.4.3. [In addition to the above, additional items have arisen more recently in other forums. For example, ITU-T Study Group 3 is currently studying “hubbing”, tentatively defined as follows: “the routing of traffic in hubbing mode consists in routing traffic to final destinations via a transit centre (hub), with payment being made, solely to the latter, of the termination (in case of reverse charged traffic: the origination) prices indicated in its hubbing offer”<sup>40</sup>. ITU Study Group 3 has also considered the issue of network externalities<sup>41</sup>, a concept which is referenced in Plenipotentiary Resolution 22 (Revised, Antalya, 2006).]

6.4.3. Certain contributions that have been submitted to the Expert Group to Review the ITRs (ITR-EG) raise matters which might be considered to be new, and thus outside the scope of ITR-EG.<sup>42</sup> The WTPF may wish to consider some of these matters[, which may include references to ITU-T Recommendations, financial harm, identification of

<sup>38</sup> See <http://www.itu.int/md/T05-TSB-CIR-0146/en>

<sup>39</sup> See <http://www.itu.int/ITU-T/itr/files/ITR-e.doc>

<sup>40</sup> See TD 11 (WP 3/3)

<sup>41</sup> See TD 8 (WP 3/3); and GR TAF – C 4 and GR TAF – C 7

<sup>42</sup> For additional information, see ITR-EG TD 28, Rev 1, at: <http://www.itu.int/md/T05-ITR-EG-080626-TD-PLN-0028/en>

origin of traffic, security, quality of service, misuse of facilities, misuse of numbering resources, fraud and dispute resolution<sup>43</sup>, among others].

6.4.4.1. [The term fraud is used in various ways and in various contexts. What is intended here is not the term as used in certain countries to refer to certain types of criminal activities. In the context of telecommunications networks, it can be defined as the use of such networks with the intention of avoiding payment; without correct payment; with no payment at all, or by making someone else pay.<sup>44</sup>]

6.4.4.2. [The term misuse, in connection with numbering resources, occurs where the use of that numbering resource does not conform to the relevant ITU-T Recommendation(s) assignment criteria for which it was assigned or when an unassigned numbering resource is used in the provision of a telecommunication service.<sup>45</sup>]

6.4.4.3. [Misuse and fraud related to numbering resources can be distinguished, although some types of misuse are related to fraud. Misuse arises when numbering resources are used for a purpose other than that for which they were allocated. Fraud arises when numbering resources are used for the purpose for which they were allocated and for the purpose of generating cash, at the expense of the customer and/or operator<sup>46</sup>.]

6.4.5 [Further, a contribution<sup>47</sup> from an ITU Member State to ITU-T Study Group 3 and the ITR-EG appears to raise a potential new issue - whether, as a general principle, operators providing transit or termination services should receive a cost-oriented payment for such services. This would tend to exclude sender-keeps-all billing arrangements.]

6.4.6. [It is proposed that the WTPF consider the matter and give its opinion regarding which, if any, items should be subject to further study in the context of preparations for the WCIT called for in Plenipotentiary Resolution 146.]

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<sup>43</sup> For additional information, see ITR-EG TD 28, Rev 1, at: <http://www.itu.int/md/T05-ITR-EG-080626-TD-PLN-0028/en>

<sup>44</sup> <http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/djibouti-08/Peter%20Hoath-4-EN.PDF>

<sup>45</sup> See 4 of ITU-T Recommendation E.156.

<sup>46</sup> See 3 of Supplement 1 to ITU-T Recommendation E.156.

<sup>47</sup> See COM 3 – C 42, which is the same as ITR-EG – C 9.

## 7 DRAFT OPINIONS

7.1. Proposed draft opinions could focus on the following topics:

- 7.1.1. convergence, including Internet-related public policy matters, as one of the topics of high current interest to ITU Member States and Sector Members;
- 7.1.2. the implications of the continued development of convergence, next-generation networks, and Internet, especially in developing countries;
- 7.1.3. emerging telecommunications policy and regulatory issues, also amongst the topics of high current interest to ITU Member States and Sector Members;
- 7.1.4. new and emerging issues, as referred to in Resolution 146 (Antalya, 2006), also among the topics of high current interest to ITU Member States and Sector Members, as discussed in the last meeting of the Expert Group to Review the International Telecommunication Regulations.

**Comment [CB8]:** The status of these opinions should be made clearer in this paragraph. It should be explicitly mentioned that a consensus among the participants of the WTPF, including representatives of Sector Members, be reached on how these opinions be presented in the Chair's final report. It should be apparent, based on the multi-stakeholder essence of the WTPF, that all parties will need to endorse the final texts of the draft opinions for the Chair to bring them to the attention of higher assemblies, such as the ITU Plenipotentiary 2010 or the WCIT 2012.



## List of Abbreviations

ASP	Application Services Provider
CPE	Customer Premises Equipment
FMC	Fixed-Mobile Convergence
FTTH	Fiber-To-The-Home
GAC	Governmental Advisory Committee
GSR	ITU Global Symposium for Regulators
HSDPA	High-Speed Downlink Packet Access
ICANN	Internet Corporation for Assigned Names and Numbers
ICTs	Information and Communication Technologies
IDNs	Internationalized Domain Names
IGF	Internet Governance Forum
IP	Internet Protocol
IPTV	Internet Protocol Television
IPv6	Internet Protocol version 6
ITR	International Telecommunication Regulations
ITR-EG	Expert Group to Review the International Telecommunication Regulations
ITU	International Telecommunication Union
IXP	Internet Exchange Point
M2M	Machine-to-Machine
NGNs	Next-Generation Networks
PSTN	Public Switched Telephone Network
RFID	Radio-Frequency Identification
RR	Radio Regulations
SDOs	Standards Development Organizations
SMS	Short Message Service
TSB	Telecommunication Standardization Bureau
TV	Television
UNESCO	United Nations Educational, Scientific and Cultural Organization
USNs	Ubiquitous Sensor Networks
VoIP	Voice over Internet Protocol
WCIT	World Conference on International Telecommunications
WiMAX	Worldwide Interoperability for Microwave Access
WIPO	World Intellectual Property Organization
WRC	World Radiocommunication Conference
WSIS	World Summit on the Information Society
WTPF	World Telecommunication Policy Forum
WTSA	World Telecommunication Standardization Assembly
xDSL	various forms of Digital Subscriber Line