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

**(15 July 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, will be 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 open for comments until 30 September 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. The purpose of the Forum is to provide a venue for exchanging views and information and thereby creating 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 relevant ITU meetings.
- ii. By Decision 9, the 2006 Antalya Plenipotentiary Conference decided to convene the fourth World Telecommunication Policy Forum in Geneva, 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 also 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 World Telecommunication Policy Forum shall be based on a report from the Secretary-General, incorporating the contributions of ITU Member States and Sector Members, which will serve as the sole working document of the Forum, and shall focus on key issues on which it would be desirable to reach conclusions.
- 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:

<b>30 September 2007</b>	Online posting and circulation to membership of the first draft of the Secretary-General's Report (drawn up on the basis of available material).
<b>15 December 2007</b>	Deadline for receipt of ITU's membership comments on the first draft of the Secretary-General's Report and additional materials for the second draft. Deadline for nominations for a balanced group of experts, to advise the Secretary-General on the further elaboration of the Report and of draft opinions associated with it.
<b>24 June 2008</b>	First meeting of the Informal Expert Group.
<b>6 July 2008</b>	Deadline for receipt of IEG Membership written comments on preliminary second draft presented to first Meeting of IEG.
<b>15 July 2008</b>	Online posting and circulation of second draft (incorporating comments and broad outlines for possible draft opinions).
<b>30 September 2008</b>	Deadline for receipt of comments on second draft.
<b>November 2008</b>	Second meeting of the Informal Expert Group (2 days after Council).
<b>January 2009</b>	Possible third meeting of the Informal Expert Group.

<b>15 January 2009</b>	Finalization of the Secretary-General's Report and deadline for its publication.
<b>20 April 2009</b>	Possible fourth meeting of the Informal Expert Group.
<b>21 April 2009</b>	Proposed date for Information Session.
<b>22-24 April 2009</b>	Proposed dates for 4 <sup>th</sup> WTPF on Convergence and emerging policy issues.

- 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. It is proposed that this group would meet twice during the consultation process. The first meeting of that group took place on 24 June 2008 in Geneva and a 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. Invitations to participate in the Informal Expert Group have been sent by the Secretary-General to those who contributed to the consultation process, plus others who he feels can make significant contributions and can assist in achieving the desired balance. In order to strengthen this iterative process, we would welcome the designation of a focal point in your office to follow up this matter.
- viii. 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. For that reason, the membership is encouraged to submit comments and contributions by 30 September 2008 to the following address:

**International Telecommunication Union**  
**Corporate Strategy Division**  
**T. 710**  
**Place des Nations**  
**CH-1211 Geneva 20**  
**Switzerland**

Alternatively, comments and contributions can also be submitted by fax (to +41 22 730 6453) or by email (to [wtpf2009@itu.int](mailto: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>.

## 1 INTRODUCTION

- 1.1. Over the period 2002-2006, many developments have occurred in the telecommunication and broader ICT environment that have significant implications for ITU as a whole. These developments include (not listed in any special order)<sup>2</sup>:

<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".

- 1.1.1. 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;
- 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 § 15 of the Tunis Commitment, adopted by the World Summit on the Information Society (WSIS), recognizing the principles of universal and non-discriminatory access to ICTs for all nations and the need to take into account the level of social and economic development of each country, and respecting the development-oriented aspects of the information society, that ICTs are effective tools to promote peace, security and stability and to enhance democracy, social cohesion, good governance and the rule of law, at national, regional and international levels; that ICTs can be used to promote economic growth and enterprise development; that infrastructure development, human capacity building, information security and network security are critical to achieving these goals; and, further, that there is a need to effectively confront challenges and threats resulting from 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; and that it is necessary to prevent the abuse of information resources and technologies for criminal and terrorist purposes, while respecting human rights;
- 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 the opening of markets to competition, greater 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, generating different challenges for policy-makers and regulators;
  - 1.1.12. encouraging the effective use of telecommunications/ICTs and modern technologies during critical emergencies, as a crucial part of disaster early warning, mitigation, management and relief strategies, in light of the accelerating pace of change in the global environment and of the action lines of WSIS;
  - 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. digital divide), due to several factors and in particular the associated costs;
  - 1.1.15. increased awareness of the role of ICTs as a tool for the overall development of society, the recognition that robust telecommunication/ICT infrastructures are fundamental to building the information society, and cognizance of the need to encourage the private sector to uphold its corporate social responsibility;
  - 1.1.16. the important role of multilingualism in enabling all countries to participate fully in ITU's work, and in constructing a global information society that is open for all.
- 1.2. Drawing upon its experience, the Union should take into account the WSIS outcomes, namely the Geneva Declaration, the Geneva Plan of Action, the Tunis Commitment and the Tunis Agenda for the Information Society. In particular, special attention should be given to those Action Lines where ITU has been named as moderator and facilitator (i.e. Action Line C2 (information and communication infrastructure, reflecting convergence of telecommunication and information networks) and Action Line C5 (building confidence and security in the use of ICTs)) and C6 (Enabling Environment) since 2008, in addition to those Action Lines in which it 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 telecommunications and information 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:
    - 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;

- 1.3.2. the need to make optimal use of the established scarce financial and human resources available for the Union's activities, and to make every effort to enhance these required resources, in order for ITU to meet its responsibilities and challenges for the benefit of its membership, particularly developing countries.
- 1.4. Article 1 9(g) of the ITU Constitution states that one of the Purposes of the Union is "to promote, at the international level, the adoption of a broader approach to the issues of telecommunications in the global information economy and society, by cooperating with other world and regional intergovernmental organizations and those non-governmental organizations concerned with telecommunications". ITU should therefore promote the adoption of a broader approach to the issues of telecommunications in the global information economy and society, including consideration of emerging issues such as the role of telecommunications in the protection of the environment and climate change, among others.
- 1.5. More recently, the phenomenon of convergence, combined with the evolution to all-IP and NGNs, provides tremendous opportunities for the telecommunication industry, but also represents significant new challenges to Member States. Convergence is the main driving force behind changes in ICT today. Convergence, brought about by technological advances in compression and digitalization, has fundamentally altered the nature of previously disparate telecommunications and media platforms. As a result, previously siloed (vertically-integrated) 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 causes the need to review traditional policy and regulatory regimes. Further, the rapid development of information services and applications makes modern telecommunications vital for participation in the knowledge economy. In order to ensure their continuing future positive development, the ITU should considerably expand its activities in the area of information technologies, services and applications.
- 1.6. 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. As market structures change, disparate regulatory regimes that were created for distinct services and associated markets may need to be re-examined.
- 1.7. Convergence also causes policy-makers and regulators to reassess their appropriate roles in a converged digital world. While no one today can authoritatively say how, or when, the digital transformation will finally resolve itself, 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. Given these variances in systems, it is difficult to foresee a simple answer that accommodates all countries at the same time.
- 1.8. "Next-Generation Networks" or NGNs represent a fundamental change in telecommunication core and access networks over the next decade, separating different service-related functions from transport-related technologies. NGNs are intended to provide consistent, ubiquitous and reliable information and communication services to users. NGNs are a key future development in networks. However, there is still significant uncertainty as to the regulatory

mechanisms that would ensure smooth migration to NGN while meeting security and quality of service requirements.

- 1.9. At the same time, the effects of convergence are being felt on many levels. On a technical level, different devices are converging (e.g. cameras and MP3s on mobile telephones, mobile and Internet access devices, etc.). There is convergence at the network level (e.g. fixed-mobile convergence, FMC), and also at the applications level (e.g. Voice over Internet Protocol or VoIP). In addition to technological convergence, institutions (e.g. regulators) and corporations are also facing convergence in a broader sense, as are entire industries (e.g. computing, broadcasting and telecommunications). Convergence underpins many of the fast-paced changes in the telecommunications industry today.
- 1.10. The science of climate change has also benefited greatly from convergence. For example, fixed-mobile broadcast convergence will bring savings in the areas of paper substitution, flexible work arrangements and traffic leveling for a stable power supplies.
- 1.11. Governments, as well as consumers, benefit from the provision of commercial broadband services. Government entities at all levels, especially local public safety entities, are benefiting more and more from the increased availability of access to secured databases and to the Internet in times of emergency (increased interoperability) and on a routine basis (increased efficiency).
- 1.12. The growing availability of wireless, as well as wireline broadband networks, has had a significant enabling effect. Broadband availability is provided by different methods in different countries, the primary methods being implementation of ADSL 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 (for example, direct fiber-optic connections). Networks in different existing radiocommunication terrestrial or space services are also converging to provide similar types of applications using broadband wireless access.
- 1.13. The deployment of broadband has raised a number of policy and regulatory issues, including: whether or not to unbundle the local loop; whether regulation should be similar or identical for technologies such as ADSL, FTTH, HSDPA, WiMAX, etc. and/or cable providers; whether a provider of new infrastructure should be exempt from certain regulations for a certain period of time; whether and/or how to apply universal access/service provisions, etc., among others.
- 1.14. There are many success stories regarding the roll-out of broadband and its use to enable new or improved applications. Several can be found at: [http://www.itu.int/osg/spu/wsis-themes/ict\\_stories/](http://www.itu.int/osg/spu/wsis-themes/ict_stories/)
- 1.15. 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.
- 1.16. Challenges for the future include:

- a) Issues affecting networks, such as strengthening trust and security in the use of ICTs, network facilities and investment incentives, access to addressing resources, fair and equitable access to NGN access networks, spectrum access, universal access/service, interoperability etc.
- b) Issues relating to users' experiences, such as total quality of service (going beyond simple network performance and including factors such as ease of handset use, etc.).
- c) The institutional challenges and benefits (or otherwise) of converged and independent regulation, and its interaction with more generic principles of competition.
- d) The specific circumstances of developing countries, which face the same challenges as developed countries, but may face additional challenges. Further, the impact of appropriate policy and regulatory responses might be different due to less fully developed networks, lower penetration rates of fixed telecommunication infrastructure and of personal computers and data communication networks, potentially limited access to capital and instability in power supply, among others. Capacity-building and standardization are also, among others, additional challenges for developing countries (see also 2.10 below).
- e) Identity management is essential for security of converged networks.

1.17. This Secretary-General's Report is structured as follows: Part 2 considers the overall 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 of the Internet-related public policy issues. Part 5 raises a number of emerging telecommunication policy and regulatory issues. Finally, part 6 discusses matters related to the ITRs.

## **2 AN ERA OF CONVERGENCE**

2.1. As per ITU-T Recommendation Q. 176, 3.1 convergence is defined 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 networks have resulted in different forms of convergence, which are resulting in the vertical, as well as horizontal, integration of the market.

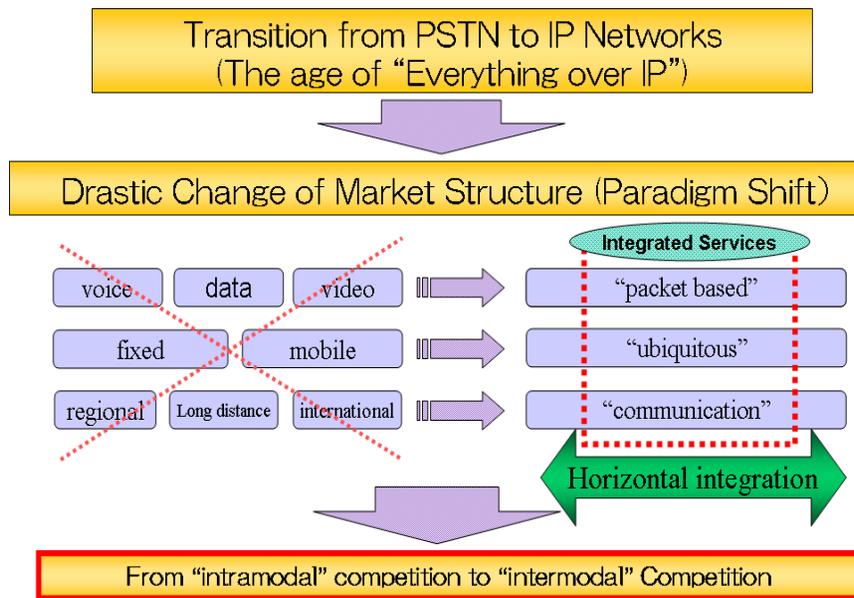


Fig.1. Development of horizontal market integration

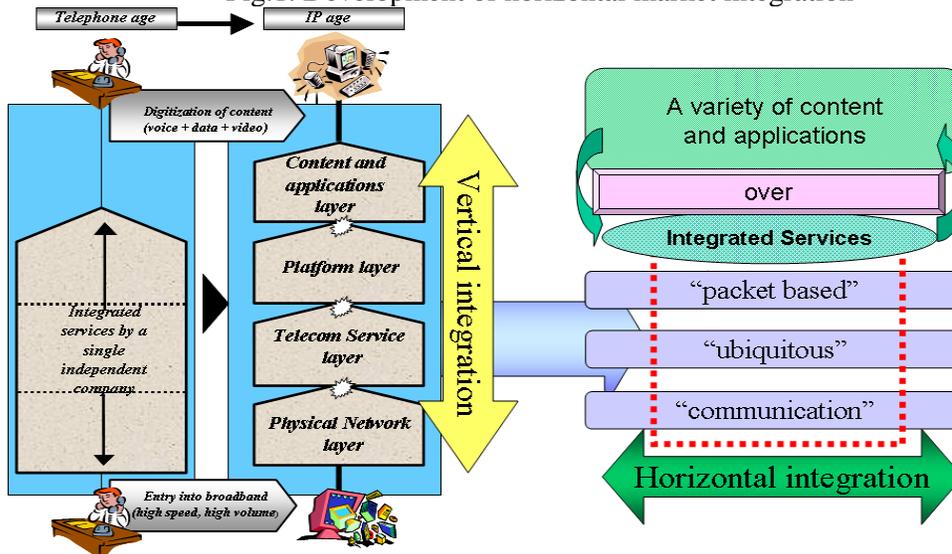


Fig.2. Development of vertical market integration

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 services are no longer associated. Network convergence refers to the increasing integration of networks and their use of IP.

- 2.3. Further, the distinction between network infrastructure and the services and applications that are delivered is increasingly blurred. Today's services (such as voice services), no longer necessarily match a specific type of network or end-user equipment. Innovation, in particular in Internet Protocol (IP)-based networks, has stimulated a wide array of ICT services and devices.
- 2.4. Fixed-mobile convergence (FMC) 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 line and mobile markets over a single network and services accessible from a range of converging devices<sup>3</sup>.
- 2.5. Terminal equipment has also been subject to the phenomenon of convergence. 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 will cause growth in future traffic and raise network neutrality issues.
- 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 foster affordable access to converged services by end-users<sup>4</sup>.
- 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>5</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, web site's containing information).

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<sup>3</sup> For reference, see ITU-T Recommendation Q. 1761,3.6 that defines FMC.

<sup>4</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>

<sup>5</sup> A general 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>.

- 2.9. Convergence can be expected to have an impact on other business activities, including: education (e.g. tele-learning materials accessible through a variety of media); 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).
- 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>.

### 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 Next-Generation Network 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>6</sup> NGN differs from the Internet. The Internet is another IP-based network, but it is an open network developed through interconnection of networks; 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.
- 3.2. NGNs can be viewed as network-operator managed broadband networks that integrate service provision to end-users over the all IP-based layers of transport, connection and, from upper levels, data, voice and video services. Operators are making NGN upgrade both to the *Core* (transport or backbone network) and to the *Access NGN* (serving the end-user, such as the local loop or wireless access).
- 3.3. Whatever the definition or migration path, most modern networks currently in deployment are IP-based, and it is widely expected that IP-based networks will ultimately replace traditional circuit-switched telecommunication networks. The variety of services that may be

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<sup>6</sup> ITU-T Recommendation Y.2001 (Study Group 13)

delivered over NGNs will generally be broader than services delivered over legacy service-specific networks. The transition to NGNs has implications for end-users, operators and service providers alike, especially with regard to competition and pricing, and raises various public policy issues including security and safety, as well as a range of regulatory issues, many of which were addressed in 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 Migration<sup>7</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 are expected to offer increased revenue streams and profitability. This arises 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, as local exchanges are eliminated or withdrawn. Network operators see NGN investments as a rational choice, when legacy networks reach the end of their life cycle, requiring equipment to be replaced. Indeed, investment in NGNs is expected to boost the equipment manufacturing market considerably, including the customer premises equipment (CPE) market.
- 3.5. For customers, NGNs are expected to respond to demands for bandwidth-hungry services and applications, guaranteed quality of service for certain IP-based applications and services (such as IPTV and VoIP<sup>8</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. Security will be an essential element to enable meeting such expectations.
- 3.6. For developing countries, NGNs offer the possibility of wireless, as well as wireline, broadband connectivity, as well as the use of Internet access devices that cost less than personal computers and laptops, and may thus play a role in improving Internet access and increasing penetration rates. Developing countries could leapfrog directly to NGNs for the provision of voice, data and multimedia services. In addition, triple-play offerings have the potential to open up television as a delivery platform to a far wider range of multimedia services, thereby overcoming, to some extent, the lack of installed, Internet-connected computers in developing countries.
- 3.7. The deployment of NGNs is accompanied by a number of challenges, including the need for significant investment in core and access networks, inter-operability between existing and NGNs and the need for terminal equipment to be interoperable across access networks. This may require increased coordination amongst Standards Development Organizations (SDOs), conformance and interoperability testing, as well as associated certification. In the migration phase, competitive operators are likely to face technical challenges as current points of interconnection are withdrawn.
- 3.8. Efficiency of the frequency spectrum utilization may be considerably higher in case of convergence of fixed, mobile and broadcasting services. It will help to satisfy the growing demand for frequencies on the part of suppliers of broadband wireless access to NGNs. Similarly, the rise of end user-created web-content could result in a greater need for bandwidth and spectrum for uploading content. The growing numbers of Internet users and IP-based devices will also increase the demand for numbering, naming, addressing and

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<sup>7</sup> All resources for the 2007 GSR are available at <http://www.itu.int/ITU-D/treg/Events/Seminars/GSR/GSR07/index.html>

<sup>8</sup> IPTV refers to the use of IP-based networks to transmit television programs; VoIP refers to the use of IP-based networks to transmit voice communications.

identification resources.

- 3.9. In particular, the rise of “networks after NGNs” (such as Ubiquitous Sensor Networks or USNs) 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 INTERNET-RELATED PUBLIC POLICY MATTERS

- 4.1. The rapid expansion of the Internet has raised a wide array of public policy issues. The ITU has a role as stated in Resolution 102 (Rev. Antalya 2006) and as further indicated in Council Resolution 1282. The question of how to handle, and in which forum to handle, certain public policy issues has proved controversial.

- 4.2. Some Member States have input contributions on this topic to various ITU groups, in particular the Council Working Group on WSIS<sup>9</sup>. One Member State has made a very specific contribution to the WTPF, suggesting very significant changes in the present governance mechanisms for the Internet, in order to stimulate a substantive discussion of this topic, which reflects the public policy needs of all countries, in particular developing countries, which are not well served by the current governance mechanisms<sup>10</sup>.

4.2.1 Some of the key policy questions that have been identified in the Handbook on Internet Protocol (IP)–Based Networks and Related Topics and Issues are<sup>11</sup>:

- a) universal access/service provisions;
- b) consumer protection;
- c) supervision of dominant market players;
- d) emergency services;
- e) access for disabled persons;
- f) security (e.g. law enforcement, cybercrime, legal intercept) and privacy protection;
- g) allocation of scarce resources;
- h) dispute resolution.

4.2.2 Plenipotentiary Resolution 102 (Rev. Antalya, 2006) references issues such as: investment in infrastructure and services, IPv6, ENUM, IDNs, Multilingualism and Capacity-building and technical assistance.

4.2.3 Council Resolution 1282 references (through C07/21) issues such as:

<sup>9</sup> For more information on this Working Group, see [www.itu.int/council/wsis/Working\\_Group\\_on\\_WSIS/Feb-2006/wsis\\_WG\\_previous\\_events.html](http://www.itu.int/council/wsis/Working_Group_on_WSIS/Feb-2006/wsis_WG_previous_events.html)

<sup>10</sup> See WTPF-IEG/1/9 at <http://www.itu.int/osg/csd/wtpf/wtpf2009/ieg/june-meeting/WTPF-IEG-1-9.doc>

<sup>11</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>

- 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, and internationalized domain names;
- d) Capacity-building and technical assistance;
- e) IPv6;
- f) Internet exchange points; and
- g) International Internet Connectivity.

4.2.4 Additional issues could be identified on the basis of relevant resolutions adopted by WTSA and other ongoing work in ITU.

- 4.3. Some of these issues identified in Plenipotentiary Resolution 102 and Council Resolution 1282 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 World Summit on the Information Society resulted in the following outcome documents: the Geneva Declaration of Principles, the Geneva Plan of Action, the Tunis Commitment and the Tunis Agenda for the Information Society. The WSIS outputs contain paragraphs related to Internet Governance and in particular called for the creation of an Internet Governance Forum to further discuss certain issues.
- 4.5. Considering ongoing debates surrounding the reform of the Governmental Advisory Committee (GAC) and the Internet Corporation for Assigned Names and Numbers (ICANN), ITU should work in coordination with GAC and ICANN and other relevant bodies (as provided by the Tunis Agenda, paragraphs 35 and 68-71) to create an environment that enables governments, on equal footing, to carry out their roles and responsibilities in international public policy issues pertaining to the Internet. ITU, for instance, could play a facilitating role in the GAC and other relevant Internet fora. ITU could create mechanisms aimed at the promotion of wider participation in these meetings, particularly within developing countries. ITU technical support would also be a significant contribution: for example, by issuing technical reports on the relevant issues in particular for preparation to GAC meetings and by providing assistance to delegations under request.
- 4.6. Some topics require further study, including the management of Internet resources, international Internet interconnection (that is, tariffs and accessibility), the multilingual Internet and diversity of participation in the Internet.

#### 4.6.1. **Management of Internet resources**

4.6.1.1. There is consensus that the management of the Internet encompasses both technical and public policy issues and should involve all stakeholders and relevant intergovernmental and international organizations (see paragraph 35 of the Tunis Agenda). 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 fail 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”. The WTPF may wish to consider which, if any, of these issues to address, and what, if any, opinions to issue with respect to these matters.

#### 4.6.2. **International Internet Interconnection**

4.6.2.1. ITU-T Study Group 3 has been studying the matter of international Internet interconnection for a number of years<sup>12</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 in some developing countries. 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 in most developing countries. Further studies should be conducted in ITU-D and ITU-T, regarding how the implementation of regional or national IXPs and the introduction of competition at the gateway can encourage infrastructure growth and development in order to reduce costs<sup>13</sup>.

#### 4.6.3. **The Multilingual Internet**

4.6.3.1. The Internet, and its key protocols, were initially developed in the United States intended for communications in English and thus initially relied on a 7-bit character encoding that supported only a limited character set. As the Internet has expanded and come to be used around the world, its protocols have been adapted to cater to a wide diversity of scripts and character sets. Work is now underway to implement a diversity of scripts in the domain name system with Internationalized Domain Names (IDN). This work is not only technical, but has also raised public policy issues. Deployment of IDN top-level domain names could contribute to the further development of cultural diversity and identity, linguistic diversity and local content.

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<sup>12</sup> See <http://www.itu.int/ITU-T/studygroups/com03/iic/index.html>

<sup>13</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.

4.6.3.2. As requested in PP06 Resolution 133, 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, ITU, ICANN and UNESCO announced collaborative efforts to forge universal standards towards building a multilingual cyberspace. ICANN is presently conducting independent IDN trials. ITU's role in the work of the Internet Governance Forum should be strengthened, as well as its collaboration with the Internet community.

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

#### 4.6.4. **Diversity of participation in the Internet**

4.6.4.1. 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.

4.6.4.2. 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).

4.6.4.3. 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 expanded to the rest of the world.

4.6.4.4. 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.

4.6.4.5. There is general consensus that an enabling environment is crucial to the development of Internet infrastructure and secure services. Education, training, and development of both people and organizations in developing countries could

assist with increasing meaningful and diverse participation in Internet-related matters. There are numerous specific projects at the national level that result in increased access to Internet in developing countries.

## **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. Emerging policy issues to be addressed include freedom of expression, e-inclusion, data protection and 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, 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 have the potential to decrease reliance on ground transportation for content delivery, while protecting the intellectual property rights of creators. A specific example of ICTs used for content delivery is “dematerialization”, or the replacement of “atoms” with “bits”. An example of this is the current shift from physical to online delivery for media content. ITU-T standards for digital compression (such as the H-series for multimedia, including MP3 and MP4) 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) play a major role in this transition, which will have the effect of cutting down pollution caused by ground transportation and production.
- 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 seamlessly 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>14</sup>. One example of ICTs mitigating the food crisis is the use of RFID to monitor food shipments to ensure efficient shipping. Additionally, ICT applications can give farmers the ability to predict weather and farming conditions with greater efficacy. ICT applications

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<sup>14</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.

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.

- 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 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 ways in which to address the regulation of traditionally separate areas 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 present an opportunity to analyze the impact that current regulatory frameworks have on innovation, investment and affordable access in order to design regulatory frameworks for NGNs that will help realize the goals of the global Information Society. In particular, aspects of universal access/service should be considered. Harmonization of naming, numbering, addressing and identification schemes also needs to be considered.
- 5.2.3. In general, regulatory frameworks which were initially designed for a traditional circuit-switched environment may not be equipped to address an IP-based environment, where multiple services can be offered over a single platform. As services converge in the NGN environment, market and service definitions used for authorization or licensing and market analysis will have to be revisited. In addition, new dominance-determination reviews may have to address 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. Implementation of public policies (including security and safety) may require investments when applied to converged IP 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 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 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, mobile networks, IP-based networks and NGNs 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. While regulators strive to develop frameworks that promote investment and innovation, especially in competitive and diversified access infrastructure, some fear that without regulatory intervention, NGNs could create new competitive bottlenecks or lead to vertically integrated monopolies. Thus, the need for specific regulation of NGNs needs to be evaluated in terms of the costs and benefits of such regulation under particular circumstances.
- 5.2.5. There are various emerging regulatory issues associated with areas such as cybersecurity, data protection, Internet numbering and naming resources, conformance and interoperability testing and associated certification, which can help create good conditions for investments and sound competition, as well as sound infrastructure. As a result, regulators have 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.
- 5.2.6. Dispute resolution under existing regulatory frameworks is under increasing pressure. Rapid changes to business value chains often put the interests of sector participants at odds with one another. The risk of disputes is aggravated by enduring asymmetries of market power in most countries and the proliferation of sector participants who must cooperate while competing in the various network, applications and content layers of the market. Resort to regulators' dispute processes has become a central part of the regulatory machinery, particularly in developed countries. Yet, in many countries, legacy regulation and jurisdictional limits struggle to keep pace with the multiple cross-sector issues raised by convergence. The large scale of investment required to build NGNs and the uncertainty of how to secure revenue flows in the constantly shifting environment raise the stakes further. Failing to resolve disputes effectively and efficiently may restrain, and in developing countries may even prevent, sector development. Regulators will have to consider the extent to which alternative dispute resolution mechanisms can help bridge these gaps, build consensus and leverage mediation and arbitration resources to supplement traditional regulatory dispute resolution.
- 5.2.7. 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. In addition, as services go beyond national boundaries, it will be necessary to ensure the consistency of competition rules through international coordination.

### **5.3. Strengthening trust and security**

#### **5.3.1. Protection of minors**

5.3.1.1. The protection of minors, in particular, has become a pressing concern<sup>15</sup>. The abuse of children and child pornography are the most alarming problems. Inappropriate content that can be delivered to minors include, *inter alia*, pornography, online games, video or audio material that are violent or sexually explicit, gambling content, spam containing adult content and so on. Although the distribution of illegal content remains the responsibility of individual member states, the cross-border nature of IP-based networks calls for measures to reinforce co-operation and to promote the interests and capabilities of youth.

### 5.3.2. **Personal privacy and the protection of data**

5.3.2.1. 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 the network, in the form of technical, market, and organizational mechanisms.

5.3.2.2. 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.

5.3.2.3. Digital identity management solutions can 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.

5.3.2.4. With the progress of IT in assisting socio-economic activity, the growth and expansion of 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 the networks. In such circumstances, it is becoming impossible to expect users themselves to do everything necessary to protect their privacy and personal data. There is a need for a secure and safe communication environment that everyone can use with ease.

### 5.3.3. **Digital rights**

5.3.3.1. The proliferation of digital networks and storage make the replication of data and content fast, easy and inexpensive. Effective digital rights management 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.

5.3.3.2. 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 that can maintain a balance between appropriate compensation for creators and the interests of consumers.

### 5.3.4. **Cybersecurity**

5.3.4.1. 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

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<sup>15</sup> As noted in Resolution 38 of the Doha Action Plan and paragraph 24 of the Tunis Commitment.

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 provide 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 for government and private sector cooperation at regional and international levels in the prevention, detection and response to the misuse of ICTs.

5.3.4.2. Security is also a vital issue for telecommunication operators. In this respect, international recommendations on the compatibility of technological solutions on a global scale would be desirable, including recommendations on collaboration between operators and law-enforcement authorities on undesirable information resources (including, for example, extremist websites, etc).

5.3.4.3. The WTPF should reach a consensus in major areas concerning security threats. 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 transition to IP-based networks and the migration to IPv6, devices that can be connected to the network are multiplying and diversifying. To ensure improved security for these devices, more sophisticated and easy-to-use encryption and authentication methods are needed.

5.3.4.4. 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.

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

6.1. The International Telecommunication Regulations (ITRs)<sup>16</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, and promote the efficiency and availability of international telecommunication services.

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**

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<sup>16</sup> See the full text of the ITRs at <http://www.itu.int/ITU-T/itr/files/ITR-e.doc>

- 6.3.1. The ITRs have remained unchanged since coming into force on 1 July 1990. Since then, there has been 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 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>17</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 that respects the divergent opinion among Member States regarding the future treatment of the ITRs.
- 6.3.4. Resolution 146 implicitly recognizes that the ITRs remain valid and relevant for international telecommunication networks and services, and that non-treaty level discussions must take place to achieve broad consensus before treaty-level negotiations can commence. Explicitly, Resolution 146 states that:
- 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 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 ITRs should be reviewed and, *inter alia*, that:
- the ITU-T should review the existing provisions of the ITRs, engaging with other sectors as appropriate, with ITU-T as a focal point;
- 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;

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<sup>17</sup> Information on various discussions that have taken place prior to the 2006 Plenipotentiary Conference can be found at: <http://www.itu.int/ITU-T/itr/index.html>

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>18</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>19</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. 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 are summarized in Annex 3 of the 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>20</sup>. ITU Study Group 3 has also considered the issue of network externalities<sup>21</sup>, a concept which is referenced in Plenipotentiary Resolution 22 (Revised, Antalya, 2006).

6.4.4. 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. The WTPF may wish to consider some of these matters, which may include references to ITU-T Recommendations, financial harm, identification of origin of traffic, security, quality of service, misuse of facilities, misuse of numbering resources, fraud and dispute resolution<sup>22</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>23</sup>

<sup>18</sup> See <http://www.itu.int/md/T05-TSB-CIR-0146/en>

<sup>19</sup> See <http://www.itu.int/ITU-T/itr/files/ITR-e.doc>

<sup>20</sup> See TD 11 (WP 3/3)

<sup>21</sup> See TD 8 (WP 3/3); and GR TAF – C 4 and GR TAF – C 7

<sup>22</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>23</sup> <http://www.itu.int/ITU-D/finance/work-cost-tariffs/events/tariff-seminars/djibouti-08/Peter%20Hoath-4-EN.PDF>

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>24</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>25</sup>.

6.4.5. Further, a contribution<sup>26</sup> from Cameroon 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 items above and give its opinion regarding which, if any, should be subject to further study in the context of preparations for the WCIT called for in Plenipotentiary Resolution 146.

## **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.

### List of Abbreviations

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<sup>24</sup> See 4 of ITU-T Recommendation E.156.

<sup>25</sup> See 3 of Supplement 1 to ITU-T Recommendation E.156.

<sup>26</sup> See COM 3 – C 42, which is the same as ITR-EG – C 9.

ADSL	Asymmetric Digital Subscriber Line
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
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
WSIS	World Summit on the Information Society
WTPF	World Telecommunication Policy Forum
WTSA	World Telecommunication Standardization Assembly