



## **'IGF Policy Options for Connecting the Next Billion'**

### **Draft Compilation**

**Note to readers from the IGF Secretariat:** *This version of the IGF 'Policy Options for Connecting the Next Billion' compilation has been updated on an ongoing basis during the months leading up to the IGF in Brazil. The community was invited to submit background contributions between the end of May and 3 October 2015 and was also able to comment<sup>1</sup> using the IGF review platform. After 3 October the community was able to continue commenting until 16 October; however, only new inputs from national and regional IGFs, IGF Best Practice Forums and Dynamic Coalitions were accepted after 3 October for integration into the compilation leading up to the IGF in Brazil. For additional background and information on the process, please visit the [IGF website](http://www.intgovforum.org). The full list of background inputs and contributions received from the IGF community that make up this compilation can be found on the IGF website here: <http://www.intgovforum.org/cms/policy-options-for-connection-the-next-billion/classified-list-of-contributions>.*

*More than 80 background contributions were received from the community including submissions from 5 regional IGFs representing most regions of the world (Asia-Pacific IGF, Arab IGF, African IGF, European Dialogue on Internet Governance, Latin American and Caribbean IGF), 10 national IGFs, and inputs from Governments, Intergovernmental Organizations, Civil Society, Private Sector and Business Community, Technical Community, Academic Community, IGF Best Practice Forums and Dynamic Coalitions and individual IGF stakeholders. Many of these contributions can be found in full via working [links](#) throughout the document to the respective inputs listed on the IGF website. We hope this compilation document and the full list of background contributions can serve as robust resources on this important topic and can also serve as inputs into other relevant Internet public policy fora and processes moving forward.*

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<sup>1</sup> Comments on the IGF review platform were received and integrated into the compilation from the following individuals: Amanda Soares Kemmer, Kasek Galgal, Dr Argyro P Karanasiou, Ana Kakalashvili, Lianna Galstyan, Mwendwa Kivuva, Grace Mutung'u, Suprita, Mohit Saraswat, Shreedeeep Rayamajhi, Evelyn Namara, Krishna Kumar Rajamannar, Michael Oghia, Chris Prince Udochukwu Njoku, Andy O'Connell

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## **I - Introduction**

### **1. Broader Context**

This bottom-up and community led Internet Governance Forum (IGF) 'Policy Options for Connecting the Next Billion' process has been carried out to help identify obstacles, solutions and strategies to improve and increase connectivity and access. This is also a timely endeavour given the ongoing process of reviewing the outcomes of the World Summit on the Information Society (WSIS+10)<sup>2</sup>.

Technological advances in connectivity have expanded broadband access and mobile penetration in recent years. More than three billion people<sup>3</sup> will be connected to the Internet by the end of 2015; however, more than 4 billion remain unconnected. Despite the progress achieved, more effort is necessary in order to connect the next billions, the last billion, and to address the digital divide. Connecting these people requires not just addressing the challenges of the supply side: building the infrastructure needed to provide universal and affordable access; but also addressing the considerable challenges of the demand side: local capacity-building to enable not just adoption, but also production and consumption of localized content and services through training for all people, especially youths, and disadvantaged populations, along with support for local small- and medium-sized enterprises. Local entrepreneurship is key to enabling sustainable development. In the pursuit to connect the next billion there is also much to be learned and applied from the experience of stakeholders addressing the digital divide to date. This initiative has drawn upon existing experiences from the IGF community to address the upcoming challenge of connecting the next billion global citizens to the Internet, enabling each to reach their full potential in "a people-centred, inclusive, development-oriented and non-discriminatory Information Society." (Tunis Agenda)

The newly adopted United Nations Sustainable Development Agenda<sup>4</sup> recognizes that ICTs are a crucial enabling platform for the implementation of the new Sustainable Development Goals (SDGs) and the agenda sets an ambitious goal to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020". Collaboration between governmental and non-governmental actors is clearly key to meeting the post-2015 development challenges and the multistakeholder nature of the IGF makes it a unique space for this ongoing discussion.

The Internet has been identified as a key enabler of development by helping facilitate positive results in education, healthcare, agriculture, employment, commerce and many other areas. The SDGs are aimed at guiding policy in achieving dignity, well-being, and equality for all the world's people - especially the poor and underserved<sup>5</sup>. A number of SDGs and related targets reference the role of ICTs and the Internet in achieving such goals. A report from the Human Rights Council of the United Nations General Assembly also declares access to the Internet a

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<sup>2</sup> <http://unpan3.un.org/wsis10/>

<sup>3</sup> <https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf>

<sup>4</sup> <https://sustainabledevelopment.un.org/post2015/summit>

<sup>5</sup> [The Internet and Sustainable Development](#)

basic human right which enables individuals to "exercise their right to freedom of opinion and expression<sup>6</sup>."

The Internet provides opportunities and allows people to take part in the digital economy, stimulates economic development and enables the transition to knowledge-based economies. It lowers barriers to markets, driving new ideas and innovation, and stimulating demand for data and devices. By enabling individuals to exchange information and ideas instantaneously and inexpensively across national borders, the Internet allows affordable access to information and knowledge regardless of location that was previously unattainable and helps users make informed decisions. For many in the developing world, access to information contributes to the discovery of knowledge, creates access to transformative technology, and drives societal progress as a whole.<sup>7</sup>

## 2. Overview

A [report](#) produced by the UN General Assembly's Economic and Social Council (ECOSOC) Working Group on Improvements to the IGF called for the development of more tangible outputs to 'enhance the impact of the IGF on global Internet governance and policy'<sup>8</sup>. The report also encourages better communication and interaction between national and regional IGF initiatives and the IGF, and for the IGF to "improve its interaction and communication with other Internet governance-related entities in order to further global policy dialogue". To enrich the potential for IGF outputs and to promote and enhance linkages between national and regional IGF initiatives and the IGF, the IGF Multistakeholder Advisory Group (MAG) has developed this intercessional programme for 2015 to complement other ongoing IGF activities, such as [national and regional IGF initiatives](#), [dynamic coalitions](#), and [best practice forums](#) (BPFs).

The outputs from this intercessional programme will become robust resources, to serve as inputs into other forums, into policy development processes and to evolve and grow over time. The theme "Policy Options for Connecting the Next Billion" was chosen for the 2015 intercessional work after an extensive public consultation with the global IGF community.

To put together this "Policy Options for Connecting the Next Billion" compilation, rounds of online public consultations have been conducted. Following the example of the IGF [best practice forums](#), an open and bottom-up process, aimed at gathering as many diverse views and opinions from the community, forms the foundation of this exercise. The theme of 'Connecting the Next Billion' was suggested as a theme for the national and regional IGF initiatives and this compilation draws heavily upon the views from these initiatives. This work also builds upon previous IGF discussion on the topic and draws upon the ongoing work of the IGF Best Practice Forums and Dynamic Coalitions.

Draft compilation outputs have been produced and further discussed using an open mailing list and the IGF public online review platform. The output will also be shared with relevant fora (e.g., WSIS+10, UNCTAD, UNESCO, etc.), and the goal is for it to provide a resource for anyone looking for ways to increase connectivity – one of the main goals of the WSIS and a foundation of the SDGs.

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<sup>6</sup> [http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27\\_en.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.27_en.pdf)

<sup>7</sup> Concept note of IGF 2015 Main Session on Internet Economy and Sustainable Development

<sup>8</sup> [http://unctad.org/meetings/en/SessionalDocuments/a67d65\\_en.pdf](http://unctad.org/meetings/en/SessionalDocuments/a67d65_en.pdf)

The IGF provides a unique platform for this collaborative work which aims to collect the views of the broader Internet governance community on the topic of connectivity and access, and organize the information received in a holistic framework. The IGF strives in all of its work to provide a neutral and open platform which ensures that all interested parties in the multi-stakeholder Internet Governance (IG) community can contribute in a bottom-up fashion. Increasing Internet access is a shared goal which is at the core of Internet governance, and many policy issues contribute to the enabling environment for improved access. Section 72 of the Tunis Agenda<sup>9</sup>, where the IGF derives its mandate, also asks the IGF to embark on this type of bottom-up, community driven work.

### 3. Defining the Issue

The IGF community has contributed a broad range of inputs to the call for contributions for this initiative. In addition to individual stakeholders who filled out an online form/questionnaire<sup>10</sup>, a number of related background papers were submitted by the multistakeholder community that are closely related to the broad topic of access and connectivity, particularly for the next billion global citizens who currently do not have Internet access for a variety of reasons. A number of contributions represent the views of the national and regional IGF initiatives<sup>11</sup> who decided to discuss the topic of “Connecting the Next Billion” within their respective IG forums at the national and regional levels.

One thing that is clear based upon the submissions received from the community is that the broad issue of “Connecting the Next Billion” can and does mean very different things to different stakeholders. While some inputs received concentrated on suggesting concrete ‘policy options’, others focused on describing the main obstacles, from their own unique perspectives, to achieving connectivity for the next billion users. For many, to ‘connect’ is defined as providing the means by which people have access to each other, information, education, and other related topics. To some in many ways the ‘connection’ needs to be put in place to ‘access’ something or someone. The connection provides the means for persons to choose what they will do and it is considered the first critical piece by many. Largely the ‘connection’ will be technical, but the levers and ways for achieving that connectivity in the first place may come through the impact of investment, the development of enabling environments, or the desire to be empowered through the realization of human rights. Many inputs have suggested that connectivity and access are therefore mutually reinforcing.

For example, to many in the developing world, “Access is understood not only as a measurement of physical access to the Internet, but also – from a rights-oriented perspective –

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<sup>9</sup> <http://www.itu.int/wsis/docs2/tunis/off/6rev1.html>

<sup>10</sup> The following questions made up the online survey for this call for inputs: How would you define the issue “Connecting the Next Billion”? Have you observed any regional or national specificities regarding connectivity (e.g. Internet industry development)? Do you know of existing policy measures, and private sector or civil society initiatives addressing connectivity? If yes, was the policy a government policy, industry policy (either collective best practice or corporate policy), technical policy, or did it pertain to civil society collaboration? Describe them. In your opinion, what worked well in the development of the policy, and what impediments were encountered? What was the experience with implementation? Did you experience any unintended consequences of policy developments/interventions, good and bad? Can you think of unresolved issues where further multistakeholder cooperation is needed? Did you gain any insight as a result of the experience? List proposed steps for further multistakeholder dialogue/actions.

<sup>11</sup> <http://www.intgovforum.org/cms/home-36966/77-igf-regional-events/igf-regional-and-national/2160-list-of-national-and-regional-igf-initiatives-2015>

as the capability to retrieve, produce and distribute information (text, visual, audio and video) over the Internet. The extent to which such capability can be attained and exercised is determined by the interaction between national and international regulatory frameworks, which establish the rights and obligations of those involved in such communications, including nation states, carriers and other stakeholders.<sup>12</sup>

A snapshot of how the issue of “Connecting the Next Billion” was defined by different stakeholders (quoted directly below via the online questionnaire<sup>13</sup>) reflects the diversity of opinions and views of the global multistakeholder IGF community:

**How would you define the issue “Connecting the Next Billion”?**

**Some of the respondents<sup>14</sup> to the call for inputs defined the issue as:**

“Connecting the Next Billion means the steps/efforts that need to be undertaken to ensure that everyone is connected, especially those from developing countries. This means putting in place the right infrastructure and adopting right regulations” - **Ms. Lillian Nalwoqa, Civil Society, Africa**

“It is the possibility of allowing people in rural and remote areas of the country/countries to take advantage of the Internet for better, faster and efficient private and public services.” - **Mr. Said Zazai, IT Advisor, Afghanistan**

“Bringing the next 1 Billion of the world's citizen's into the Internet Age to enable them to get access to knowledge and improve their economic circumstances through safe e-commerce.” - **Ms. Louise Bennett, BCS - The Chartered Institute for IT, Civil Society**

“Connecting the Next Billion is simply a challenge to all Internet stakeholders to engage in making Internet securely accessible and affordable to a new crowd of prospective users who are majorly dwellers in rural and remote areas in the world.” - **Contribution from the Nigeria Internet Governance Forum**

“The current fluctuation of technology and power has created a discrimination among the vast divide. For achieving the next billion we need to solve these issues” - **Mr. Shreedeeep Rayamjhi, Civil Society, Nepal**

“Connecting the Next Billion to me is a clarion call to motivate stakeholders to provide Internet access to more people of the World with a focus on the next billion. That call for action requires procedure, best practice. And hence it encompasses protocols, standards, services, security, policies, laws on the Internet. It would be necessary that the next billion connected use the Internet better.” - **Mr. Akin-Awokoya Emmanuel, High Tech Center for Nigerian Women and Youths**

“Connecting the next billion is not only about connecting those who are not yet connected but also those who are under-connected.” - **Ms. Judith Hellerstein, Private Sector, USA**

“I believe ‘Connecting the Next Billion’ means overcoming the digital divide not just in terms of the availability of the infrastructure and access but in terms of the ICT skill and knowledge too. Infrastructure, proliferation of broadband, digitization, and ICT education are thus the major areas that come to mind” - **Mr. Zakir Syed, Civil Society**

<sup>12</sup> [http://www.researchictafrica.net/publications/Evidence\\_for\\_ICT\\_Policy\\_Action/Discussion\\_paper\\_-\\_Mapping\\_Multistakeholderism\\_in\\_Internet\\_Governance\\_-\\_Implications\\_for\\_Africa.pdf](http://www.researchictafrica.net/publications/Evidence_for_ICT_Policy_Action/Discussion_paper_-_Mapping_Multistakeholderism_in_Internet_Governance_-_Implications_for_Africa.pdf)

<sup>13</sup> <http://www.intgovforum.org/cms/policy-options-for-connection-the-next-billion/list-of-contributions>

<sup>14</sup> <http://www.intgovforum.org/cms/policy-options-for-connection-the-next-billion/list-of-contributions>

During the 2014 Istanbul IGF plenary focus session on ‘Policies Enabling Access, Growth and Development on the Internet’, the IGF community made a strong call “to facilitate the connection of the next five billion currently without access.” Another call was made to “increase the emphasis and inclusion of ICTs and Internet access in the post- 2015 development agenda of the UN as a catalyst for economic growth. Many participants stressed that enabling access should be a concern for all who are part of the Internet community. It was said that while there are certainly challenges in both hemispheres, through perseverance and learning from mistakes and embracing best practices, we can reach the goal of bringing every person on the planet broadband access to the Internet. Another issue that was highlighted was that broadband access should be recognised as a universal right and key to digital social inclusion. This was considered to be especially important for users with disabilities and marginalised groups, and for promoting multilingualism.”<sup>15</sup>

***In the following section’s, the contributions received from the IGF community to this process are organized in the following way, also following the table of contents:***

- ***Issues in increasing access as they relate to:***
  - o ***Deploying Infrastructure***
  - o ***Increasing Usability***
  - o ***Enabling Users***
  - o ***Ensuring Affordability***
- ***Recommendations on creating an enabling policy environment for increasing access from government, private sector, and civil society.***

***Some inputs and contributions have been included verbatim into the compilation, some have been lightly edited, while others have been summarized. Links to the full text of all the contributions referenced have also been included. The full list of contributions is available on the IGF website.***

## **II - Policy Issues and Options related to Connecting the Next Billion**

As evidenced by workshops and panels at national and regional IGFs, the policy issues and options related to Connecting the Next Billion are critical global topics.

“Access requirements are different depending on the different users’ requests. However, the differences do not only relate to physical infrastructure. When addressing access, different layers need to be taken into account: the physical layer (cables, satellites, technologies, etc.); the logical layer (DNS, protocols, open standards); and the content layer (digital literacy, skills).

Different challenges require different solutions: aspects like geography (island countries) and demography (population density, rural areas, aging population) also play a role. Therefore “policy options” need to be adapted to the national and local circumstances.” ([Input from the European Dialogue on Internet Governance \(EuroDIG\)](#))

“Bringing the next billion online and bridging the digital divide: Combined efforts from public, private and community sectors are needed to create sustainable initiatives to solve issues of affordable accessibility and digital literacy for all. Effort is also necessary to support local

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<sup>15</sup> <http://www.intgovforum.org/cms/policy-options-for-connection-the-next-billion/list-of-contributions/details/31/2387/list-of-contributions-none>

languages in all facets, as well as new emerging digital divides with new technologies.” ([Input from the Asia Pacific regional IGF \(APrIGF\)](#))

## 1. Deploying Infrastructure

Many contributions provided examples, both ‘good’ and ‘bad’, related to the infrastructure needed to provide Internet access to the next billion users. Some offered policy suggestions as to how infrastructure should be developed while others offered insights on some major obstacles in the way for deployment of necessary infrastructure, particularly in the developing world. This section also examines the emerging role of mobile connectivity and the variety of new ways that those in the developing world are becoming connected to the Internet for the first time.

In recent years, an incredible amount of work has been done to build out infrastructure such as submarine cables to increase international bandwidth. Terrestrial infrastructure has also increased in parallel to improve conditions; however, much more investment and public-private cooperation is necessary to strengthen national backbones in the developing world, and, in particular, rural populations, and to increase and scale-up cross-border connectivity. Internet exchange points (IXPs) have become a priority for some countries to increase local infrastructure development and to help bring connectivity costs down. IXPs also can stimulate build-out of terrestrial fibre, attract regional and international operators, increase locally hosted content development, all of which can make access and use of the Internet cheaper and faster. Another issue raised by contributors related to long-term Internet expansion is deployment of IPv6.

It is clear from the submissions received that infrastructure development is a key driver for socio-economic growth and access to that infrastructure is paramount to development.

### a. **Physical, Interconnection Layers, and Enabling Technologies (Undersea Fibre Cables, Broadband, Spectrum, Mobile, IXPs, IPv6, etc.)**

[Recommendations from the African regional IGF](#) related to physical infrastructure:

- Regional initiatives should be enhanced to promote broadband infrastructure.
- Power grid capacity should boost through diverse sources.
- The African Union should explore the creation of a continental common toll-free Internet platform in conjunction with Telco’s and other stakeholders to preserve the identity and unique cultural heritage of Africa.

Submission from the [Ministry of Communication of Brazil](#):

“Because of the continental dimensions of Brazil and the lack of infrastructure in areas of difficult access, the Federal Government commissioned the production and launch of Geostationary Satellite Defence and Strategic Communications - SGDC, which will operate in the Ka-band for civil communication, and the X-band for military communication. The project perspective is that the satellite will be launched by the end of 2016. Among the obligations of the contractors, is the contractual obligation to transfer and facilitate the absorption of the technology, in order that Brazilian industry may participate in the supply chain for this sector. Currently, the satellite Internet access service (provided mainly by satellites operating in C or Ku



bands) costs between R\$ 1,000.00 and R\$ 3,000.00 (USD\$ 290.00 – USD\$ 858.00) monthly for packages with 1 Mbps speed download. With the operation of SGDC, it is expected that prices will stabilize around the level of prices charged in other countries for Ka-band services provided or about US\$ 50.00/month for 10 Mbps.

Connection with the world: Submarine cable between South America and Europe -

The company Telecomunicações Brasileiras S.A. – Telebrás has been working on a project to launch a submarine cable for data connection in between Brazil and Europe. The cable will have approximately 7,8 thousand Km of extension and will hold a much larger data transmission capacity than what is presently available in between these two continents. The project counts with a European partner who possesses an extensive experience in the area and will enable Telebrás to achieve autonomy regarding the international IP traffic. Therefore, it is expected that the costs will be significantly reduced after the completion of the project. This project has been counting both with the support of the Brazilian Ministry of Communications as well as with several bodies of the European Union.

Internet Exchange Points and South America:

It is understood that Internet Exchange Points are important in terms of cost reduction, routing optimization and latency reduction in the operation of data traffic services. That is the reason why Anatel has established as one of its weighted measures - applicable to group which hold significant market power - the obligation to connect to points of traffic exchange, along with the obligation to make the offer of full peering, paid peering and traffic available. As a soon coming next step the Federal Government intends to amplify the range of impact of Internet Exchange Points in order to reach the entire region of South America.”

[Input from the EuroDIG:](#)

“In the physical infrastructure layer, aspects like geography (island countries), and demography (rural areas, aging population) play a role. Solutions include: public policies to stimulate investments for broadband rollout and to provide funds where private investments are not enough; and the development of PPPs (public-private partnerships).

One shared example was that of Slovenia, where the government, in cooperation with the local community, is driving an initiative through which 80 million USD are allocated for bringing broadband to rural areas; around 30,000 connections (most of them optical) to individual households have already been established. The government is now working on a new broadband strategy and the plan is for the state to only support projects that look at establishing broadband connections of at least 100 Mbps.

In Latvia, both the government and the private sector are working together to expand access to broadband infrastructure. While the government is allocating financial support in such a way as not to disturb competition on the market, the private sector continues to invest in broadband, while being driven by two key elements: innovation and competition. One interesting aspect when it comes to competition is related to the fact that, in addition to the existing fixed and mobile access to broadband infrastructures, there are more and more organisations that provide free of charge Wi-Fi access. At this point, there are more than 4000 such access points in the entire country and they are becoming a competition for the mobile networks. In term of actual use, the government, together with the industry and the education sector, is building policies aimed at encouraging people to use the Internet more widely; one example is the development

of e-government services and the requirement that some public services (such as payment of certain taxes) are provided only via the Internet.”

Input from the [APrIGF](#):

“Open access and spectrum for Wi-Fi for development: Wi-Fi, including open Wi-Fi has become a vital method for achieving Internet connectivity, due to its use for ad-hoc local networking, and its easy accessibility from mobile devices. Open access to the Wi-Fi spectrum is increasingly important to support the ongoing demand to access content, services and applications that serve development needs.”

[Submission from the European Broadcasting Union \(EBU\)](#):

“Spectrum policy worldwide needs to be inspired by criteria of public and general interest because spectrum is a common good - and not only based on the principle to find cash resources for governments looking for additional source of revenues.”

[Submission from the International Chamber of Commerce Business Action to Support the Information Society \(ICC BASIS\)](#):

“A pro-competitive broadband policy that ensures the right market conditions for infrastructure investment and innovation is essential to the on-going deployment of broadband. This pro-competitive framework must be technology neutral and market-led. Otherwise, the potential for broadband deployment may easily be stifled. Several policy challenges need to be resolved to create the right market conditions to promote broadband deployment such as: promoting a culture of security, combating cybercrime, ensuring effective intellectual property protection.”

[One submission analyses barriers to Internet connectivity in Latin America](#). The report examines the issues using data from large-scale household surveys in several countries in the region. The analysis suggests that policy initiatives targeted at specific socio-demographic groups are critical complements to national broadband plans. The report also examines to what extent connectivity gaps are associated with affordability as opposed to other factors such as lack of interest and skills. In general, the results show that, despite significant decreases in Internet access prices over the past five years, the cost of services continues to be a major barrier for adoption. By parsing out the effect of affordability from other reasons for non-adoption, the analysis contributes to a better understanding of how best to address existing connectivity gaps in the region.

[Benin's national IGF](#) took stock of the situation regarding access in the country, citing many of the concerns and themes relevant to the developing world. A snapshot of Benin reveals a majority of Internet users connect to the web through a mobile device rather than a fixed line (some 2 million versus 50,000 users), that social media networks have had a so-called ‘democratization’ effect in urban areas where most Internet traffic flows, and that more than half of Beninese people live in rural areas. The urban/rural divide looms large over the issue of access, as does the question of whether or not investments in fixed broadband capabilities will truly benefit a population that is largely mobile-enabled only. Members of this national initiative conclude that infrastructure stands as a starting point, and can have a catalysing impact. Progress on content development, computer literacy, and technically-trained human resources, could come on the heels of infrastructural improvements to fixed access.

## Mobile

[The \(Groupe Spéciale Mobile\) Association \(GSMA\) Global Mobile Economy Report](#) states that: 'The mobile industry continues to scale rapidly, with a total of 3.6 billion unique mobile subscribers at the end of 2014. Half of the world's population now has a mobile subscription—up from just one in five 10 years ago. An additional one billion subscribers are predicted by 2020, taking the global penetration rate to approximately 60%. There were 7.1 billion global SIM connections at the end of 2014, and a further 243 million machine-to-machine (M2M) connections. The benefits of the new mobile ecosystem are not limited to the developed world. Innovative mobile solutions are helping to provide underdeveloped, underserved and poverty stricken regions with the opportunity to overcome socio-economic challenges, particularly in the areas of financial inclusion, health, education and disaster response.'

A group of researchers at ICT Africa submitted a [research paper](#) on the connectivity and Internet usage status in 11 African countries based on household and individual ICT survey data. The paper gives a special focus to the problem of expensive prepaid mobile Internet service that are only available to 'elites', while the rest of society has to rely on public access points. It is asserted that increasing competition in mobile markets is an efficient way of fulfilling the gap that exists in the homogeneous market and will result in an increase in the choice of services and a reduction in prices.

A submission from the [IGF chapter in Niger](#), which is ranked 142nd in the World Bank's listing of countries by GDP, and last on the Human Development Index, credits mobile phones for nearly all progress on connectivity in the country. The further progress expected with the establishment of 3G networks, however, is left wanting.

### [Submission from GSMA:](#)

"A precious and finite resource, radio spectrum is fundamental to the delivery of mobile services. The International Telecommunication Union (ITU) estimates between an additional 1340 MHz and 1960 MHz of spectrum will be required to meet the anticipated demand in 2020. As mobile disrupts and affects more areas of consumer and business life, the potential for collaboration also grows. Players from across the digital ecosystem, ranging from mobile operators to new entrants and existing players in adjacent industries, will increasingly recognise the need for collaborative innovation, rather than competition, if they are to realise the full potential of mobile."

The deficit is notable in a Latin American country like Brazil, where the country's size and large rural areas, some of which lack access to electricity, create barriers to connectivity. The [Movimento de Espectro Livre](#) argues for investment in wireless technologies in these areas, rather than cable, which could derail connectivity.

### **b. Funding Sources: Universal Service Funds, Public Private Partnerships**

One recommendation from the [African regional IGF](#) was that "Universal Service Provision Funds should be used to engender infrastructure into under served areas and to enable access affordability."

The Alliance for Affordable Internet has examined the use of Universal Service Access Funds to increase equitable and affordable Internet access. USAFs should start by addressing the institutional environment in which they operate, including factors such as operational independence, legal clarity, and internal capacity. To go further, USAFs can also support both the demand and supply of broadband. Here, strategies have included infrastructure support, subsidising access to devices, improving rural connectivity, and building demand through training and awareness. The most successful funds are those that expend resources in a very targeted manner to address critical affordability and access gaps. ([Submission from the Alliance For Affordable Internet](#))

On behalf of the Universal Access Fund and ICT Infrastructure Investment Africa, a group of researchers [submitted a paper](#) that focuses on the problem of unequal investments in ICT infrastructure between urban and rural areas. Even though most people live in rural areas, in many parts of Sub-Saharan African countries, the investments on behalf of Universal Access Funds are mainly directed into urban and semi urban areas, as they are more economically profitable. Investment into rural areas, which have traditionally been perceived as uneconomic, has been limited by the high cost of rolling out networks and services.

### **c. Deployment**

Internet Exchange Points (IXPs) are a well-established concept and there is a substantial body of expertise on Best Practices and the characteristics of local environments that are conducive to the formation and success of IXPs within the IXP operator community. This knowledge is not evenly distributed, and some stakeholders have expressed a need for wider awareness raising.

The aim of the [2015 IGF Best Practice Forum on Enabling Environments to Establish Successful IXPs](#) is to help make that knowledge more widely available, and to assist interested parties in discovering how to access community knowledge, rather than developing new concepts.

Generally, IXPs are simple technical switching fabric where different players in the Internet ecosystem (ISPs, content providers, hosting companies) exchange Internet traffic with each other at a lower cost. An Internet Society [report](#) takes stock of the development of IXPs in Latin America and the Caribbean, documenting best practices in four selected cases: Argentina, Brazil, Colombia and Ecuador. It argues for accelerating the development of IXPs as a necessary step towards improving the quality and coverage of access services in the region, and points to the role that IXPs can play in lowering connectivity costs.

Internet Protocol (IP) addresses uniquely identify devices on the Internet. The original IP addressing scheme, IP version 4 (IPv4), is running out of unallocated numbers while the demand for Internet connections continues to rise. The successor to IPv4 is IP version 6 (**IPv6**), a new version of the Internet Protocol. Currently, both IPv4 and IPv6 are in use, but the goal of widespread IPv6 adoption is particularly important to maintaining the growing Internet's global reach and integrity.

A successful deployment of the new addressing scheme will go easier and quicker in an environment that is favourable to IPv6 adoption. [The IGF Best Practice Forum \(BPF\) on Creating an Enabling Environment for IPv6 Adoption](#) seeks to collect and describe best practices that could help policymakers in creating an enabling environment for IPv6 adoption.

Different practices will depend on the particular characteristics of any given community (e.g. technical, economic, regulatory or legal, human resources) and local factors.

“In the logical layer, the development of IXPs and the deployment of IPv6 and Internationalized Domain Names (IDNs) are examples of technical aspects playing a crucial role in the enhancement of access.” ([Input from the EURODIG](#))

## **2. Increasing Usability**

The need to ensure that people are able to use the Internet according to their needs was reflected in many of the contributions. Providing access to the Internet is only the first step – once in place people must be able to use it. Ensuring availability and the ability to use applications, to stimulate the development of local content and services in all languages, and to implement strategies for safeguarding access to people with disabilities were some of the issues identified by the community.

### **a. Applications**

A [World Bank Report](#) interprets how the poorest of the world’s citizens use mobile phones to enhance their lifestyles and livelihoods, using, as a case study, the example of South Africa. The paper presents the causal relationship between low usage of mobile media tools and Internet literacy which is based on the argument that even when people have access to the Internet, they lack understanding of it. The goal of the study is to investigate the demand for mobile applications, services and products, with a view to increasing economic opportunities and improving well-being for users of some of the poorest countries in the world.

### **b. Services**

One [submission](#) from a civil society stakeholder emphasized that in Peru and many countries in Latin America, citizens need more knowledge about what the Governments and the Private Sector are doing to increase access and connectivity, especially people in rural areas where geography and culture must be taken into account.

A chapter from the [World Economic Forum Global Information Technology Report 2015, Understanding Digital Content and Services Ecosystems: The Role of Content and Services in Boosting Internet Adoption](#), analyses a key reason that Internet penetration rates in some developing countries are lagging behind others, despite the fact that online connectivity is both available and affordable. The authors focus on the role of digital content and services in the evolution and development of the increase in Internet adoption and usage.

### **c. Local Content, Multilingualism**

In the content layer, stimulating the creation of local content in local languages play an important role. In order to increase the demand at local level, content has to be accessible, cheap and interesting for users. ([Input from EuroDig](#))

The [2014 IGF Best Practice Forum on Creating an Enabling Environment for the Development of Local Content](#) produced the following [findings at the conclusion of the 2014 IGF in Istanbul](#):

One [submission](#) problematizes the geographies of Internet coverage space. The paper argues that even in an age of almost ubiquitous potential connectivity, online voice, representation, and participation remain highly uneven. The input explores why, in an age of almost ubiquitous

potential connectivity, so many people are still left out of global networks, debates, and conversations.

#### Submission from ICC BASIS:

“Policies that promote the continued creation of locally relevant content should be encouraged, including protections for the freedom of expression, the press, privacy and intellectual property, the development of e-commerce infrastructure, consumer protections, and trusted online payment systems. Such policies should be market-driven and based on voluntary commercial arrangements, avoiding schemes that unduly burden any one sector over another such as mandatory must-carry regimes.”

#### Submission from the Iberoamerican Federation of IT Associations:

“The main policy we want to suggest is on the subject of the local development of contents (social, education and technical), innovation and technical developments. If the initiative just works on expanding infrastructure, the whole effort will just bring more users into huge companies, but not achieve its full potential in impacting local societies and their economies.”

#### Submission from the Paraguay IGF:

“Connecting the next billion is always associated with infrastructure and access, but it also has to be considered about access to information and content in our own languages and from our own culture. So, policy must also focus on these aspects and promoting local content creation and in Spanish and respectful of native American languages. It is not only a matter of being connected but making a very good use of it to improve social, economical and human development. This can only be done with connectivity and digital literacy.”

### **d. Media**

#### Submission from the European Broadcasting Union:

“Media provides one of the main incentives to access the digital world. When one considers that penetration of the Internet around the world is 3.2 billion people out of a total of 7.2 billion (so less than 50%) and access to TV is around 80% and radio is around 98% you see that there is room for improvement and tighter cooperation among these three. Media and their attractive and professional content are one of the main reasons and incentives for audiences to move into the digital world. Most of the Internet traffic around the world is driven by professionally produced quality content.

Another contribution from media is the production of local contents in local languages, which is one of the key components for the education of future society and also for democracy. In the transition to the Internet, this characteristic of traditional media risks to be hampered or even totally cancelled by the progressive erosion of resources. The globalization of the markets makes easier for a developing country to exports its goods, but on the other hand exposes its own local content industry to the competition of globalized players of enormous dimensions.”

### **e. Accessibility**

#### Recommendations of the Swiss IGF:

“There was wide agreement that although an appropriate national and international legislative framework on accessibility is available, a lot of work remains to be undertaken on its actual implementation, both by private and public actors. Awareness-raising, education and training of specialists is needed. Otherwise we risk a growing divide, as access to new digital services and content grows more and more pervasive, missing the chance for fuller integration and losing the opportunity of reaping the benefits for the wider population which stem from accessibility. Accessibility requirements should be mandatory for all government procurement.

On the role of copyright as a possible barrier to full access to content, a fact-based approach was advocated. The need to adapt existing rules to the new digital environment and new forms of use, while maintaining pre-existing public interest uses – as for public libraries and the archiving of relevant public digital native content – and established user rights as the possibility of private copying, was identified by participants. In addition, open access solutions for publicly funded scientific publications and research results were also mentioned as a good way forward. Or: Anything paid by the public must be accessible for the public.”

The [IGF Dynamic Coalition on Accessibility and Disability](#) facilitates interaction between relevant bodies, to work towards ensuring that ICT accessibility is included in the key debates around Internet Governance in order to build a future where all sectors of the global community have equal access to the Information Society.

#### Submission from ICC-BASIS:

“People with disabilities experience a variety of barriers to fully participate in the information society, including inaccessible web sites, mobile phones, personal computers, tablets, as well as many other digital interfaces in public and private spaces such as electronic kiosks, banking machines, or electronic voting machines. If ICT accessibility requirements are not adequately addressed, people with disabilities and senior citizens with sensorial, physical or cognitive impairments are excluded from mainstream information sources and services, reducing their ability to participate in information societies, and thus minimizing their potential contributions.”

### **3. Enabling Users**

Many inputs provided insights and examples of issues related to enabling individuals online once they have gained some access to the Internet. Examples of good practices that have improved digital literacy at the national and regional levels were offered, while others examined the obstacles in place in terms of providing the necessary user literacy education when getting new users online. Inputs stressed the importance of human rights online and the need to focus on the enablement of young people, women and girls, the elderly and persons with disabilities.

#### **a. Human Rights**

“Human rights and development are integrally linked. It is widely accepted that human rights standards should equally apply online. Respect, defence and the promotion of a wide range of human rights online in the region need to be strengthened. Violations of rights to freedom of expression and to privacy through online censorship, sexual harassment and mass surveillance are growing concerns. Commitment by states and private sector to developing and adopting clear standards, procedures for protection and transparency are needed to strengthen respect for human rights on the Internet in the region.” ([Input from the Asia Pacific regional IGF - Asia Pacific regional IGF - Human rights and development on the Internet](#))

### Input from the African IGF Session on Human Rights on the Internet:

“The panel noted that Access to the Internet is essential for the full realization of human development and facilitates the exercise and enjoyment of a number of human rights and freedoms, including the rights to freedom of expression and access to information, peaceful assembly and association.

The following specific recommendations were made:

1. Establish, with the ACHPR, of mechanisms to promote, monitor, and popularize the African Declaration on Internet Rights and Freedoms and UNESCO’s concept of internet universality across the continent to ensure their role as guiding principles for the further development of public policy in support of human rights and the internet;
2. Establish of self regulatory, independent objective oversight, and sanctioning mechanisms in light of the Declaration of principles to ensure Rights to Privacy in the Digital age are protected and the Johannesburg principles on national Security implemented, similar to an Ombudsman.
3. Recognise that meaningful access to ICTs including control over ICTs as a key resource, play an important part in catalysing change towards advancing the status of women and girls, and their human rights.
4. Recognise and develop responses that empower women, working with all other stakeholders, to address the emerging issue of online violence against women.”

#### **b. Inclusiveness (Gender, Youth)**

The 2015 IGF Best Practice Forum on Countering the Abuse Against Women Online provides an open and inclusive multistakeholder platform for the exchange of information on online conduct and behaviour that potentially constitute abuse and/or violence of women, with the aim of collecting and compiling a helpful resource output for communities to create a safe and enabling environment for women online to participate fully in the development of an inclusive and people-centred information society.

“A gender digital gap still persists and is expressed in multiple dimensions. This begins from unequal access to basic Internet infrastructure; the affordability of connectivity costs and devices; gender disparity in education opportunities, including digital literacy; uneven capacity to use the Internet for their needs and priorities; specific gender-based challenges and barriers, including the availability of relevant content and the censorship of online content related to gender and sexuality; and gender-based harassment and violence, both in physical spaces for accessing the Internet (such as public access points like cyber cafes) and in online environments (including online harassment and cyberstalking).” (The 2015 IGF Best Practice Forum on Countering the Abuse Against Women Online)

#### **c. User Literacy**

Recommendation from the African regional IGF: “Open Data Models, local content development, eLearning initiatives & others should be used to boost demand.”

The IGF Dynamic Coalition On Public Access In Libraries (DC PAL) has developed a set of Principles on Public Access in Libraries for review and feedback as part of the Dynamic Coalition Main Session scheduled for the 2015 IGF meeting in Brazil. The WSIS+10 review is underway and the UN post-2015 development agenda continues, with national development plans to follow. Feedback on this statement from IGF participants in 2015 would underline the critical role of libraries in ensuring access to information through providing



internet and supporting technology, and support libraries in their efforts to engage in the national development plans related to the sustainable development goals.

#### **d. Digital Citizenship**

“Fostering public access points, as for example in public libraries and community centres among others, and promoting in those spaces digital literacy and local content production activities could also secure better conditions for Internet access and use.” ([Input from the LAC IGF](#))

The [submission of the International Federation of Library Associations and Institutions](#) reported on an IFLA workshop held at the Asia Pacific regional IGF 2015 in Macau, where participants discussed scenarios and cases reflecting different requirements for information by different communities, from highly urbanized populations to those scattered in rural areas, from sophisticated users of modern metropolitan web-based library systems to indigenous communities in remote areas coming to grips with basic digital literacy in their own language in order to develop small enterprises. Some key points made at the Macau workshop were; “The principles of the UNESCO/IFLA 'Manifesto for the Public Library'<sup>16</sup> are relevant. In a modern urban environment, with high levels of household Internet penetration and even higher levels of personal (mobile) usage, library systems operate through a digital platform for multimedia materials.”

#### **Contribution from Microsoft:**

Overall, about one billion people, or 15% of the world’s population, have some form of disability, and 80% of them live in the developing world. Microsoft also embraces the multistakeholder approach in meeting this accessibility challenge. Examples of efforts to include the disabled include working with a school for blind students in Kenya, low income populations with disabilities in Latin America, and accessible electronic voting machines. In 2013, Microsoft joined with the Broadband Commission for Digital Development, the Global Initiative for Inclusive Information and Communication Technologies (G3ict), the International Telecommunication Union (ITU), The United Nations Educational, Scientific and Cultural Organization (UNESCO), and others to jointly produce a report, “The ICT Opportunity for a Disability Inclusive Development Framework.” G3ict also produced a UNESCO report on WSIS progress relative to people with disabilities, with specific recommendations and a call to action for governments. These efforts help disadvantaged communities not only access information, but build capacity to utilize that access in meaningful ways.

#### **e. Entrepreneurship**

In a chapter from the [World Economic Forum 2015 Global Information Technology Report, ICTs for Inclusive Growth: E-Entrepreneurship on the Open Internet](#), the opportunities for entrepreneurs worldwide that are created by access to the open Internet are outlined. Those formerly excluded from economic opportunity can now use the Internet for education, research, fundraising, and collaboration to start their own companies—opportunities that would be unimaginable without access to the open Internet.

### **4. Ensuring Affordability**

Many inputs received focused on the critical issue of costs and the affordability of Internet access, particularly in the developing world. For many, cost of access is the biggest impediment

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<sup>16</sup> [http://www.unesco.org/webworld/libraries/manifestos/school\\_manifesto.html](http://www.unesco.org/webworld/libraries/manifestos/school_manifesto.html)

to getting online; and, subsequently, much of the major work being done around the world to get the next billion online focuses on bringing down the costs of access to make the global Internet affordable for all.

### **a. Digital Divide**

The Brazilian civil society organization, Movimento de Espectro Livre, references a “[digital divide](#)” in the Internet economy - between the domestic production of Internet equipment and devices and their international production. Despite attempts to bolster a national industry, without the sufficient investments in R&D, Brazil cannot compete with foreign-produced goods. While the country can claim that connectivity is improving, it is not fully benefitting from the Internet economy.

A [report](#) from the Internet Society underlines the vast diversity of economic conditions among ASEAN member states and how this reflects a digital divide in the region. To remedy the divide and increase Internet penetration rates, it argues that the focus should squarely be on increasing supply and lowering the cost of access. The multiplier effects from increased Internet usage to the economic and social development of ASEAN member economies are so profound as to warrant a specific and sustained focus.

#### [Contribution from the Arab IGF:](#)

“In the context of the Arab region, the issue around connecting the next billion Internet users is specific to bridging the persisting both urban and rural digital gaps. There is a need to address infrastructure issues, namely spectrum availability of 3G and 4G services, which are critical mainly because mobile broadband is a key enabler of consumer economic benefit. Affordability of Internet access, which is affected by the regulatory framework and the scarcity of IXP’s at the national and regional levels can significantly impact lowering the cost of communication. Devices cost and computer illiteracy are also the main reasons why Internet penetration is still sluggish, which affects directly the establishment of a robust local content industry and profitable Internet economy. The foresaid challenges trigger a domino effect, hence is the need to set up a long term vision which takes into account policy implementation that does not conflict with the overall benefit of being connected to the Internet.”

### **b. Costs of Access per Capita**

“Most of those who are not connected simply cannot afford to be. While many studies note that access prices are falling around the world, we find that the cost of fixed broadband remains about 40% of an average citizen’s monthly income across the 51 countries covered in this study, while the price for an entry-level mobile broadband package hovers at just above 10% of monthly incomes. Other issues, such as lack of relevant content, and limited digital and language literacy, combine to entrench this divide even further. [The Alliance For Affordable Internet’s 2014 Affordability Report](#) is an effort to identify and quantify some of these challenges, and to identify what policy and regulatory drivers can lead to enhanced affordability. We aim to understand why some countries have succeeded in making Internet access more affordable, accessible and universal, and what others can do to catch up quickly.”

In their input, [The Policy Tools Making Internet Access More Affordable Across The World](#), the Alliance for Affordable Internet also reported that increasing affordable Internet access is essential if countries are to achieve the social developments and inclusive knowledge-based

economies they desire. Many of the challenges in improving Internet affordability require both innovative policies and methods to make these strategies a reality.

There are many well-known benefits to infrastructure sharing, such as lowering industry costs. For example in India, the GSMA estimates that to date tower sharing has saved operators 40-50% on their capital expenditure costs. To encourage this practice and make operators more amenable to sharing, governments can put in place guidelines and regulations to support infrastructure sharing and introduce new business opportunities. These can include licenses for companies that focus on infrastructure sharing (e.g., independent tower companies) and incentives for sharing. Taxation can be a highly political issue, but is also an important factor in determining affordability. Identifying the right balance between short-term revenue gain and long-term socio-economic growth is crucial for developing sustainable fiscal policies that will contribute to national development. The best way to achieve this delicate balance is to develop a policy based on evidence, and underpinned by empirical studies that help to understand the potential impacts of taxation reform. An example of this includes the efforts of the A4AI multi-stakeholder coalition in Mozambique.

In light of the affordability gap in low-income and rural areas of Brazil, the Movimento de Espectro Livre proposes [the development of firmware for devices already on the market](#), so existing devices can still be used and costs decreased through free software. A starting point could be firmware with OpenWRT-based developments (<https://openwrt.org/>), which has evolved a lot in this respect.

## 5. Creating an Enabling Environment

Many inputs received examined various policies and politics that either encourage and increase or impede access. Contributions emphasized the importance of creating attractive and successful business environments through policies, regulations and legislation; however, such best practices will be very different depending on existing government policies in place particularly in developing countries. Some contributions offered examples of interventions, strategies and regulatory measures that have found success while others offered some failed examples for others to learn from.

Submissions to this process emphasized that future connectivity efforts need to ensure that those coming online have access to the entire global and open Internet. Access should be universal, equitable, secure, affordable, and high-quality on the basis of human rights and the rule of law and respect should be given to privacy and the freedom of expression.

### a. Government, Regulatory Authorities and IGO Frameworks, Laws and Regulations

[Some Recommendations from the African regional IGF](#) were as follows:

- “- Connecting the next billions should be viewed as a Programme/Project by countries and stakeholders and as such should be approached using Programme/Project best practices and methodologies.
- Ministries of Communications & Information Technology or departments responsible for ICTs should review their ICT & broadband policies/plans through enhanced multistakeholder cooperation involving diverse stakeholder groups, towards ensuring that all are involved in policy implementation.

- Governments should demonstrate requisite political will to implement viable policies already in place. There are cases such as when one government replaces another, the new government abandons an ongoing project by the previous government.
- The Smart Africa initiative at the regional level should be sustained to help remove e-frictions in states/countries such as right of way challenge, multiple taxation and deployment of government services online using the open data model.
- Effective monitoring and evaluation of programmes using online and real-time portal reporting.
- The African Union (AU) should embrace an enhanced multistakeholder approach to its meetings and consultations with governments, private sector, civil society, academia and the technical community.”

Input from [the Arab IGF](#):

“Most initiatives to address connectivity issues in the Arab region are led by the government. The Ministry of Telecommunications in Lebanon for example took the following measures to reducing the tariffs of communication on local, international and mobile calls along with sharp decrease on Internet services fees, which resulted in an increase in landline and Digital lines (DSL) subscribers and led to an increase in Internet penetration from 70% in 2013 to 86% in 2015. It also upgraded the DSL network introducing VDSL2 technology increasing the Internet speed to between 30 Mbps and 50Mbps.

Jordan on the other hand has developed a five-year strategic plan for the telecommunications and information technology sectors, prepared in full partnership with the private sector, with the purpose of improving the role of ICT in Jordan’s economic development and job creation. The strategy is designed to be aligned with the Government of Jordan’s Policy in the Telecommunications and IT Sectors in its recommendations. The strategy was prepared by INTAJ “Information & Communication Technology Association-Jordan” and is entitled “national ICT Strategy 2013 - 2017”, available at:

[http://www.intaj.net/sites/default/files/jordan\\_nis\\_june\\_2013.pdf](http://www.intaj.net/sites/default/files/jordan_nis_june_2013.pdf)”

[From the Mozambique IGF](#):

“In Mozambique we actually are discussing within different forums (A4AI, NIGF and Smart Dialogue for Internet Governance) the alternatives for affordable Internet access in order to encourage more users to be connected to the Internet, and within that discussion we have identified some issues that we can consider as policy options for connecting the next billion:

- Infrastructure Sharing and Open Access,
- Fiscal policy, Taxation,
- Research and Data Collection.

Infrastructure sharing mechanisms could cut broadband costs significantly – by up to 80% of current deployment costs, according to a forthcoming study by the Association for Progressive Communications. Infrastructure sharing reduces the capital costs of network deployment and therefore supports expansion and increased geographical coverage. It also reduces operating costs (e.g., tower maintenance and operation) by allowing operators to share these costs. If new market players can gain access to existing infrastructure at competitive rates, entry barriers will be minimized, promoting competition that can result in reduced prices for Internet access to the end user.

Infrastructure sharing occurs at different levels — through opening up access to existing copper networks, through joint building and operation of shared backbone infrastructure, or through coordination among linear infrastructure providers, and over a variety of conduits like power lines, gas pipelines, and/or roads. The participation of all market players in creating a special purpose vehicle for aggregating, building and marketing backbone networks under open access principles has been gaining momentum in Africa in recent years and, as evidenced by the case of Burundi, has had a positive impact on network expansion and affordability.

Our research shows that countries that have instituted shared infrastructure in the backbone market fare better than those with limited initiatives for cooperation between operators. Countries that have implemented infrastructure-sharing mechanisms have generally seen improved access at affordable prices (e.g., Kenya, Malaysia, Ghana and Nigeria). It is therefore important to promote commercially driven sharing, based on open access principles, and encourage collaboration among linear infrastructures providers, like power, gas and railway firms, to coordinate the building of broadband networks and leverage their rights of way and other assets to reduce access costs.

The Burundi Backbone System (BBS) is a partnership between different players with the intention to share a national backbone on an open access principle. It is a joint venture between the Government of Burundi, with initial financial support from the World Bank and four telecom operators (Ucom Burundi, Africell Tempo, Onatel and CBINET). The model separates the roles of the service provider and the network operator and provides services to operators on a fair and non-discriminatory basis.

The BBS is an independent infrastructure provider (Infraco) company that manages the Burundi backbone and ensures connection of the network to the landing stations of submarine fibre optic cables via Tanzania, through Rwanda, and onward to Kenya through Uganda. It operates and maintains the fibre optic communication network, and leases fibre optic connections to operators and companies, as well as to the government.

Based on interviews with BBS representatives, we learned that the completion of the backbone network and availability of relatively competitive access to international submarine cables has already reduced broadband prices from an average of US\$1200 per Mbps/month to about US\$300 per Mbps/month for end-users in Burundi. The government of Burundi is also one of the main beneficiaries of the initiative. It has negotiated a 10-year Indefeasible Right of Use (IRU) to deliver Internet connectivity for ministries and other government offices in the capital city of Bujumbura.”

[The Alliance for Affordable Internet Affordability Report](#) study covers 51 developing and emerging countries and contains a roadmap for achieving affordable Internet, with more than 30 detailed policy recommendations for governments, businesses and not-for-profits.

[The submission from the Association for Progressive Communications](#) emphasizes that, “Significant resources will be needed to support national policy and regulatory changes to improve affordability and coverage of broadband networks. It should be emphasized that there is no 'one-size-fits-all' solution and that national broadband strategies need to be developed through extensive public consultation which include all stakeholder groups – national and regional government structures, private sector and civil society.

Key policy strategies to address the access gap:

- Eliminating market protections for incumbent operators and levelling the playing field where markets are encumbered by dominant operators

- Increased government investment in public access facilities and awareness raising of their uses among disenfranchised groups in particular
- Allowing innovative uses of spectrum and new spectrum sharing techniques
- Promoting local ownership of small-scale communications infrastructure (local license availability)
- Using public funds and utility infrastructure to ensure national fibre networks are extended into remote and sparsely populated areas
- Adopting effective infrastructure sharing guidelines and regulations
- Reducing taxes on ICT goods and services”

#### Contribution from the European Commission:

“Among the policy options implemented by the EU to increase digital access and inclusions, some concrete initiatives include the establishment of broadband targets in the [Digital Agenda for Europe](#); the creation of ad-hoc funds to stimulate investments ([European Structural and Investment Funds](#), [European Fund for Strategic Investments](#); [Connecting Europe Facility](#)); actions to improve digital skills and literacy (Opening-up Education initiative; European Coding Initiative, EU Code Week, “Grand” for digital jobs; creation of networks of [Digital Champions](#) in all European Union Member States), among others.

International organisations can and should have a role: together with the private sector. International organizations can: Show the benefits of investments in access, including high capacity connectivity; Promote healthy, competitive and stable market environments; Develop private-public partnerships for non-commercially viable areas; Transfer expertise and technology and share best practices.”

#### Contribution from the Colombia IGF:

“In Colombia civil society initiatives grouped in a national Telecenter Network shared their strategies of appropriation with government initiatives (Compartel centres) in order to replicate the experience of managing call centres operated by Civil Society Organizations - CSO. This experience was very positive results that showed that involving different groups of the community in the use and appropriation of new technologies is a task that needs to take into account their needs and realities so that their participation enables the development of their own models of development. In addition, applying these proven methodologies of appropriation in the telecentres operated by CSO showed that increased the use by community of the telecenters and their participation in ICT training processes. This experience showed that connectivity policies should be accompanied by a component of ICT appropriation in order to take advantage of this infrastructure more efficiently and demonstrates that work with multiple stakeholders improves the chance of success of these processes of appropriation of ICTs.”

#### Contribution from the Nigeria IGF:

“In Nigeria, there are some policies in place that address connectivity. Most of these policies are government policies, but they are as a result of collective contributions from various stakeholders, with the adoption of best practices. There have also been Internet access initiatives by private organisations, where institutions/organisations provide free or affordable Internet access to rural communities as part of their Corporate Social Responsibilities (CSR).

Some of the policies developed by the government are the Broadband Policy, ICT Policy and the Local Content Policy. These policies are implemented by various sectors and agencies. The

Broadband Policy was a reaction to the International Telecommunication Unit (ITU) call for a national broadband policy in Nigeria. The goal of the Nigerian Government through this policy is to deliver a broadband speed of not less than 50% of the average speed available worldwide to consumers within five years. It is widely believed that for there to be an increased access to the Internet, there must be an improved broadband penetration.

The Federal Ministry of Communication Technology developed a national ICT Policy to establish a comprehensive framework for the ICT sector in Nigeria that will encourage investments and also enable rapid expansion of ICT networks and services that are accessible and affordable to all. Apart from the policies set by the government, there have also been countless initiatives by agencies and organisations to improve access in Nigeria. The national Information Technology Development Agency (NITDA) has a number of initiatives, and they are as follows: Rural Information Technology Centre (RITC), Campus Wide Area Network, Knowledge Access Venues (KAV), Community Access Centres (CAC) in Libraries, IT Infrastructure for Tertiary Institutions, to mention a few. Please visit their website to read more about these projects. ([www.nitda.gov.ng](http://www.nitda.gov.ng))

The Nigerian Communications Commission (NCC) under the Federal Ministry of Communication Technology, in line with the national Broadband plan has put in place new licensing regimes that will facilitate rollout of telecommunications infrastructure to hinterland. The Commission in collaboration with the Universal Service Provision Fund (USPF) also has some initiatives that enable this. The NCC has carried out numerous access projects, namely, State Accelerated Broadband Initiative (SABI), Wire Nigeria Project (WiN). Also, through the USPF, the NCC has carried out many Internet access/broadband improvement projects. Some of them are, Community Communications Centre (CCC), Rural Broadband Internet (RUBI) Access, Accelerated Mobile Phone Expansion Project (AMPE), School Access Projects, etc. To read more about these projects, kindly visit their website [www.ncc.gov.ng](http://www.ncc.gov.ng).”

#### **b. Private Sector-Led Initiatives and Market Strategies**

##### Alliance for Affordable Internet recommendations:

- “- Liberalized market with an open, competitive environment
- Nurture healthy market competition
- Streamlined licensing process with no legal barriers to market entry
- Ensure a competitive market structure, with limited or no national government ownership of end user service providers
- Available access at reasonable market rates to international gateway or cable
- Transparent disclosure of pricing and service options to end users
- Permit pre-paid and tiered pricing models
- Remove barriers to crossing national borders with network infrastructure and traffic”

##### Input from ICC-BASIS:

“Strategies proven to promote broadband deployment and, in turn, fuel the growth of the Internet include:

- “(1) open and competitive markets with fair, investment-friendly and comparable regulatory intervention for all actors active in the digital value chain;
- (2) a strong reliance on voluntary commercial arrangements;
- (3) policies that promote efficiency through engineering-driven design, such as the creation of IXPs; and
- (4) policies that promote the growth of the products and services delivered over broadband.”

### From the Kenya IGF:

“One initiative changing lives in Gulu, Northern Uganda christened “Zoom Wireless” is a good model for expansion in underserved areas of Africa, where traditional ISPs and mobile operators fear to tread, especially most parts of Sub-Saharan Africa. This project has been running for slightly over 2 years championed by Brian Munyao Longwe, a renowned Internet pioneer in Kenya. Its products range from a symmetrical 512 Kbit/s link to 9 Mbit/s with the top-end speeds costing about \$190/month which Brian says are competitive enough except compared to slower mobile network bundles. The total cost of the Gulu roll-out was \$45 000 for three points of presence, including all of the equipment to run the operation. \$25 000 of this total went into the solar backup to provide 36 hours of uninterrupted service in event of an outage. Extension for each town of Lira, Soroti and Mbale cost just about \$30 000.<sup>17</sup>

In a post in a popular Kenyan advocacy group called KICTANET, Brian says, “we established a social enterprise that is using internet technologies to improve livelihoods for communities in this post-conflict region. This is mainly through making high speed broadband available to rural communities at low cost. NGOs, corporates and individuals alike have been flocking to take up the broadband services after years of poor quality and expensive services from the mobile operators who sell mainly data bundles that have poor performance. We ride on Uganda's national optical fibre network (owned by the ministry of ICT's national IT Authority - NITA-U) and from Kampala interconnect with a variety of bulk providers (Seacom, Liquid Telecom, Simbanet) who are connected to submarine networks via Mombasa. Our service approach has greatly challenged the internet services paradigm and scored greatly with our subscribers, many of whom enjoy better services in these rural towns than their colleagues in the capital Kampala. All locations and equipment are solar powered as there is very little infrastructure in Northern Uganda”.<sup>18</sup>

At the East African IGF held in Kampala, Uganda, where Brian presented their work to participants, he noted that although the cost is still high, Zoom Wireless has helped bridge the gap and take broadband to nearby businesses which would otherwise be unconnected. This demonstrates that networks can be set up relatively cheaply to cover towns and districts that have existing mobile data but not a solid broadband service for the home or office.”

### **c. Non-Profit, Public-Private Partnerships and Other Initiatives**

### Recommendations from the Arab IGF:

“Proposed steps for further multistakeholder dialogue/actions:

- Foster private-public partnerships to invest in telecom infrastructure to reach out to disadvantaged areas.
- Establish national and local dialogues on the benefits of the Internet and how it could improve the economic situation of individuals.

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<sup>17</sup> In Africa, ISPs fill the broadband gap <http://www.techcentral.co.za/in-africa-isps-fill-the-broadband-gap/50508/>

<sup>18</sup> Here's the Real Way to Get Internet to the Next 4 Billion People <https://lists.kictanet.or.ke/pipermail/kictanet/2015-September/047168.html>



- Develop policies and regulations that cater for a competitive access-price strategy to ensure the Internet is affordable at the macro level.
- Engage with CSO's to reinforce their role in mobilising the communities they work with."

#### Policy Suggestions from the 2015 Latin American and Caribbean IGF (LACIGF):

- In the past 7 years, more than \$ 150 billion in infrastructure was invested in the region. Latin America has made great progress: the penetration rate is very high with respect to mobile telephony; the connection and the speed of the Internet are increasing and the prices have fallen by 30%, between 2010 and 2012. For the next 7 years, it will be required another \$ 400 billion to achieve the goal of ending the digital divide;
- There is an increasing pressure for more regulation and it increases the cost associated with the investments and operations of telecommunication networks;
- It is urgent to facilitate the deployment of telecommunications infrastructure, to facilitate the access to spectrum and lower taxes;
- Companies must have the ability to develop business models to break restriction income; - Internet access can be universalized through mobile telephony, but it has to be ensured that this access be neither restricted nor fragmented;
- Digital inclusion programs such as the distribution of computers to children in public schools in Uruguay are very important; - Investments in network services in order to close the coverage gap and increase capacity and quality is quintessential.

#### Submission of the Benin IGF:

"Sectoral steps have already been taken with reforms of Benin's telecommunications industry. The state telecom company has partitioned into distinct service-oriented (Bénin Telecoms Service SA) and infrastructure-oriented (Bénin Telecoms Infrastructure SA) companies, both open to public and private investment. The reforms include a critical planned roll-out of fibre optic cables across the country. Of particular importance to members of the group is the visibility and popularity of Benin's national domain, '.bj'. In a country of 10 million people, the domain has only 500 registered websites, due in part to low web penetration in Benin overall. The domain name is seen as key to national awareness-raising campaigns on Internet use."

#### Recommendations from the Federal Telecommunications Institute of Mexico:

"Proposed steps for further multistakeholder dialogue/actions:

- To promote access for persons with disabilities to information technology and communications, with emphasis on the development of applications that meet the standards and criteria of inclusion and accessibility.
- Make terminal devices and telecommunications services more affordable and better quality in order to provide widespread access to digital services, mainly ensuring the inclusion of vulnerable groups.
- Strengthen the telecommunications infrastructure by encouraging public-private partnerships.
- Encourage campaigns aimed at creating and improving skills in relation to network threats, both users and service providers. Also create campaigns aimed to encourage good use of technology to increase the economic, social development and improve knowledge.
- Encourage the scheme governance in multi-stakeholder Internet issues, understanding the role that each stakeholder has for the development of this important economies and the exercise of human rights tool."

'Policies Enabling Connectivity' Submitted by Facebook:

“Governments play a crucial role—where governments lay the foundation, the private sector can build. There are a number of policies that governments can explore and adopt to promote investment and innovation in support of connectivity.

#### Reduce the Cost of Internet Access:

As mentioned previously, the cost of Internet access remains one of the biggest inhibitors to universal connectivity. On this issue, governments have significant leverage in helping businesses lower prices. For instance, governments can support innovative business arrangements, such as Free Basics, that provide access to affordable basic services, including but not limited to messaging, search engines, social networks, weather, education, and financial services. This will encourage the expansion of access for first-time Internet users.

#### Promote a Free and Open Internet:

Maintaining a free and open Internet is essential for the industry’s innovation and growth. Governments should prohibit ISPs from blocking, throttling or building fast lanes to privilege certain products over others. Access providers should not impose barriers between people and the content and services they want to access. When introducing new legislation relevant to the Internet industry, governments must also be cautious to avoid inhibiting innovation. Innovative business arrangements that promote connectivity and economic development, such as zero-rating of content, give more people more access to more content and are critical for expanding access. By increasing local demand for Internet content, such arrangements lead to more competitive markets with more diverse content.

#### Expand Connectivity Infrastructure:

Gaps in connectivity infrastructure is not only a major barrier but also an opportunity for public-private cooperation. Governments can facilitate quicker and cheaper deployment of Internet infrastructure by streamlining the local licensing process and reducing other legal barriers to entry. Another effective policy is to promote the sharing of passive infrastructure by adopting a “dig once, build once” philosophy that encourages providers to determine if others wish to share in the initial costs of deploying connectivity infrastructure and then share its use. Tax incentives can also accelerate Internet deployment and adoption processes, such as accelerated depreciation for connectivity infrastructure investments, R&D tax credits to promote infrastructure innovation, and a tax credit to companies that provides mobile broadband to employees.”

#### Recommendations from the Colombia IGF:

“List of proposed steps for further multistakeholder dialogue/actions:

- Multistakeholder actions are needed to extend the impact of ICTs in reducing the extreme poverty in countries like Colombia.

- Participate in spaces like the Internet Governance Forum at local, regional and global levels that support the implementation of policies that contribute to the stability of Internet as an agent for development and reduction of the digital divide.

- The ICT appropriation component linked to access is very important to increase the impact of government initiatives and reduce the digital divide.

- Working together to promote the production of software and local contents with a social focus on the improvement of education through the use of ICTs, the facilitation of access to online financial services and reducing the digital divide.

- It's key to continue to encourage public Internet access strategies and not neglect them for the opportunities posed by mobile Internet access because these spaces are an opportunity for vulnerable communities to link to the information society. The figures show in the case of Colombia only 9.64% have mobile access to monthly paid plans.

- Work together to expand access in rural areas and communities not connected promoting, among others, the community wireless networks and the connection of schools and libraries to broadband.

- Reduce or eliminate taxes related to Internet access and devices needed to deploy infrastructure.

- Work to reduce gender gaps and ICTs.”

The Broadband Commission’s report on [The State of Broadband 2014: Broadband for all](#) concludes that Countries must prioritize both supply and demand-side policies to develop a full range of broadband infrastructure, applications and services. national strategies to increase broadband adoption and use must take into account the full range of government actions or policies and their impact on the cost to consumers of services, devices and relevant apps.

The report also concludes that “to help empower their populations and to cope with this challenges of capacity, Governments must initiate and prioritize their national Broadband Planning process and invest in ICTs and digital e-skills as an engine of economic growth and development. These Plans must take into account both supply and demand – equitable deployment of broadband cannot be accelerated by consideration of one side alone. In line with the Commission’s targets, Governments should seek to make broadband available, affordable and accessible by both men and women alike.”

In addition, the report also asserts that “alongside the strong growth in the market, more complex challenges are emerging. Most notably, regulation is not keeping pace with the changes in the market – Internet players offering equivalent voice and messaging services are, by and large, subject to relatively limited requirements (including consumer protection, privacy, interoperability, security, emergency calls, lawful intercept of customer data, universal service). Asymmetric regulation has resulted in an uneven competitive landscape for services. Governments and policy-makers need to review and update their regulatory frameworks to take into account evolving models of regulation. It is vital that every country prioritize broadband policy into account to shape its future social and economic development and prosperity, emphasizing both the supply and demand sides of the market. Further, it is crucial to adequately evaluate the alternatives to be implemented in order to encourage private sector investment. A “one size fits all” policy to broadband roll-out could have negative implications for the ICT market. Finally, a detailed cost-benefit approach should be adopted when evaluating different public policies and regulatory options to promote the growth and development of broadband in different countries around the world.”

[GSMA Mobile Economy Report 2015:](#)

“For the full potential of mobile to be realised, populations across the world need access to mobile broadband networks, and affordable devices and services. The unconnected population is predominantly rural, with low incomes and high levels of illiteracy creating barriers to mobile internet adoption. Operators, other ecosystem players, as well as governments and regulators all have a role to play in addressing these barriers and improving the reach and affordability of mobile services. With a supportive regulatory framework, the mobile sector will continue to drive socio-economic progress, benefiting individuals, companies and governments alike. While regulatory frameworks will differ from market to market, there are some general principles that apply across the globe. There are a number of steps that policymakers can take to encourage investment. These include reducing constraints on market-driven restructuring as operators seek to gain the necessary scale, while also ensuring there is a solid business case for deploying mobile technologies and services. Governments also have a role to play in encouraging innovation, and policymakers can help the mobile industry build the necessary trust and confidence in the digital economy. If policymakers and regulators encourage investment, competition and innovation, both the mobile sector and the wider digital economy will expand, creating prosperity and new jobs.”

A [submission](#) from a civil society stakeholder suggested that “We need to consider expanding private and public sector engagement in order to be successful in our “Connecting the Next Billion” campaign. We need to significantly augment the current public and private sector ICT stakeholder community. We should start recruiting support and participation from government and industry leaders in trade, transportation, finance, tourism, healthcare, education, construction, etc. as each has significant interest in expanding and deepening individual and corporate engagement with the Internet.”

The [IGF in Niger](#) notes that lack of political will impede the development of the Internet industry in the country. It has called for more regional cooperation initiatives, spearheaded by bodies like UEMOA (the West African Economic and Monetary Union) and ECOWAS (the Economic Community of West African States) - which already play a role in developing the region’s financial and judicial sectors - to provide blueprints for an implementation strategy in Niger.

[Microsoft’s contribution](#) emphasizes the importance of creating innovative ICT solutions and initiatives that are inclusive, and that help to realize the full potential of peoples around the world, while enabling sustainable social and economic development through partnerships with local business, governments, civil society, and others.

The Microsoft contribution concludes that there are diverse policy tools to facilitate connecting the next billion, but the ones detailed within the report share some important traits:

- “1. openness to dialogue among a wide variety of partner institutions and organizations (including government agencies, local communities, international organizations, and non-government actors);
2. inclusiveness of local actors who are uniquely aware of and responsive to community needs;
3. an enabling environment for joint planning and execution of policies and projects among partners;
4. identification of socio-economic development opportunities and priorities, which can speed the process of identifying stakeholders and resources; and
5. application of successful models across disciplines, alongside flexibility to pilot new solutions.”

In their [submission](#), Telefonica asserts that “public-private partnerships can play an important role in providing connectivity to remote regions. There are a wide range of initiatives based on public-private cooperation that have proven to be key contributors for narrowing the digital divide:

- Intégrame: Public-private partnership to deploy communications facilities in isolated areas, through wireless technology. Through rolling out 32 new base stations in 29 districts of Peru during the last 4 years, Intégrame has connected 229 villages, benefiting more than 70,000 inhabitants.
- Media Networks: A Telefónica Digital company, provides a pioneer Internet Access service through Ka band satellite communications in Latin America. Available since 2013 in six countries in the region, it plans to reach over 800K homes in the next 4 years.
- M-Inclusion: Funded by the European Commission, this public-private initiative facilitates online dialogue between developers of inclusive mobile solutions, and potential users who are at risk of social exclusion (low income, disability, chronic illness, and isolated areas). M-Inclusion aims also to act as a collaborative forum to reinforce the ecosystem integrated by governments, private entities, NGOs, academics, and researchers, which have the common goal of promoting the digital inclusion. All ecosystem players can participate in the M-Inclusion community free of charge, and access a variety of services, including a virtual marketplace, where developers can offer their inclusive applications to targeted end users.”

Spam continues to be a significant problem for Internet users, creating a burden for developing countries, networks, operators and all end users. High volumes of unsolicited email can cause significant impacts to regions with limited Internet access as well as raise concerns for all regions with the increasing malware infections that come from unwanted email. Unsolicited email may be magnified in developing countries, where high volumes of incoming and outgoing spam can cause a severe drain on the limited and costly bandwidth that is available in those regions. [The 2015 IGF Best Practice Forum on the Regulation and mitigation of unwanted communications \(e.g. "spam"\)](#) provides examples of best practices used to address the proliferation of spam.

### **III – Conclusion and Recommendations - The Way Forward**

It’s clear from contributions received from the IGF community that an intensified multistakeholder effort is needed to creating the enabling environment necessary to connect the next billion and forthcoming billions to the Internet.

**Beyond the specificities reflected through the national and regional IGF contributions and others, the IGF community identified some common recommendations for multistakeholder actions moving forward:**

- **In the deployment of infrastructure** much more investment and public-private cooperation is necessary to strengthen national backbones in the developing world, and, in particular, rural populations, and to increase and scale-up cross-border connectivity. Infrastructure development is a key driver for socio-economic growth and access to that infrastructure is paramount to development.
- **To increase usability** it’s important to ensure the availability and the ability for users to use applications, to stimulate the development of local content and services in all languages, and to implement strategies for safeguarding access to people with disabilities.

- Policies that promote the continued creation of locally relevant content should be encouraged, including protections for the freedom of expression, the press, privacy and intellectual property, the development of e-commerce infrastructure, consumer protections, and trusted online payment systems.
- **To enable user's online** emphasis should be placed on the promotion of human rights and the enablement of young people, women and girls, the elderly and persons with disabilities. Access to the Internet is essential for the full realization of human development and facilitates the exercise and enjoyment of a number of human rights and freedoms, including the rights to freedom of expression and access to information, peaceful assembly and association.
- Fostering public access points, as for example in public libraries and community centres among others, and promoting in those spaces digital literacy and local content production activities will also secure better conditions for Internet access and use.
- **To ensure affordability** and address the digital divide, increased efforts and investment are necessary to increase supply and lower the cost of access. Increasing affordable Internet access is essential if countries are to achieve the social developments and inclusive knowledge-based economies they desire.
- Many of the challenges in improving Internet affordability require both innovative policies and methods to make these strategies a reality. There are many well-known benefits to infrastructure sharing, such as lowering industry costs. To encourage this practice and make operators more amenable to sharing, governments can put in place guidelines and regulations to support infrastructure sharing and introduce new business opportunities.
- **In Creating an Enabling Environment** future connectivity efforts need to ensure that those coming online have access to the entire global and open Internet. Access should be universal, equitable, secure, affordable, and high-quality on the basis of human rights and the rule of law and respect should be given to privacy and the freedom of expression.

This initiative has been a unique exercise in the history of the IGF. As a process it is an attempt to mobilize the inherent benefits of solving complex problems through a diversity of perspectives - each with their own contribution to the solution. It is also a unique opportunity for the IGF community to manifest the benefits of a multistakeholder approach in tackling the challenges ahead, and a chance to show the IGF's ability to produce tangible outputs in an efficient and effective manner.

As the Internet continues to permeate almost all aspects of modern society, the importance of bridging the digital divide increases. The Internet has shown its potential to function as a key enabler for economic and social progress, but it could also exacerbate the economic and social inequalities between those connected and those that are not. This is why the issue of connecting the next billion cannot wait. We hope that this initiative is a step towards reaching the goal, and if successful could be linked to efforts in other fora and inspire new collaborations across the wider community.

This compilation output document, available on the IGF website, will be presented and discussed during the 10<sup>th</sup> IGF Main Session on 'Policy Options and Best Practices for

Connecting the Next Billion' on 11 November in João Pessoa. We hope this compilation document and the full list of background contributions can serve as a robust resource on this important topic and can also serve as an input into other relevant Internet public policy fora and processes moving forward.

Based on further inputs and comments received during the meeting in Brazil, a final version will be published and shared with the relevant fora and the wider community immediately after the conclusion of the IGF meeting.

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**Online List of Contributions and Inputs:**

<http://www.intgovforum.org/cms/policy-options-for-connection-the-next-billion/classified-list-of-contributions>