

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

APC Submission to the 2015 IGF Intersessional  
3 October 2015  
access@apc.org

### **Table of Contents**

The Nature of the Problem	P1
The underlying causes of limited connectivity	P3
Needed Policy Responses to the Access Gap	P4
Targets	P5
Summary	P6

### **The Nature of the Problem**

Affordable and reliable internet access has become a vital means to exercise fundamental human rights and freedoms. As observed by the UN, “the internet is one of the most powerful instruments of the 21st century for increasing transparency in the conduct of the powerful, access to information, and for facilitating active citizen participation in building democratic societies”<sup>1</sup>. However, as the internet becomes more ubiquitous, less is being heard from those who are disconnected – the less wealthy and more marginalised groups – who are unable to demand rights on the same footing as those who are connected.

At the outset it is important to observe that access inequalities are more visible when disaggregated by disadvantaged groups – particularly women (who are often concentrated in low income groups), but also other groups at risk, such as cultural minorities, people living in remote small islands, and in the least developed countries generally. The UN Broadband Commission reported that more than 90% of people in the 49 LDCs were without broadband services in 2013.

The digital divide is also particularly evident along the urban/rural axis. In most developing, and even some developed countries, internet users in rural areas are often faced with limited coverage and much slower internet speeds. In addition, those restricted to mobile services experience broadband speeds are comparatively low, while latencies and costs are usually much higher than fixed wireless (e.g Wifi) or cable-based services. In addition, mobile links usually have metered access and tariff caps which constrain the amount of data that can be exchanged affordably, while complex tariff packages can limit competition and restrict the user’s ability to manage costs effectively.

Clearly there have been major improvements in access for many, particularly through reduced costs of equipment (e.g smart-phones and tablets), and greater availability of wireless broadband services (e.g Wifi and 3/4G). But high internet access costs continue

---

<sup>1</sup> United Nations document A/HRC/17/27, (2011) para 2.

to be the biggest factor limiting connectivity in most developing regions<sup>2</sup>, particularly for more isolated and disenfranchised groups. This also affects the many who may be 'connected' but are unable to make use of the full power of the internet. This is due a variety of reasons, but in particular due to slow speeds, high costs or because they are confined to 'walled gardens' comprising a small subset of subsidised web sites.

Connecting the 'next billion' will therefore require a major and concerted effort to address a variety of factors which are highlighted below. Contending with these issues will also vastly improve the connectivity of many of those who count themselves among the connected. One cannot speak simply of those who are either connected or unconnected – there is actually a spectrum of connectivity levels ranging from complete disconnection up to the fully connected on high bandwidth unlimited connections, with the majority of connected people somewhere in between – most of them being irregularly connected on high cost low-speed metered mobile broadband links.

In this respect APC observes that equal efforts are necessary, not only to connect more people, but also to move the billions who are 'barely connected' into a fully pervasive and affordable connectivity environment. Similarly, connecting the next billion is not simply a matter of improving the coverage of mobile broadband services, but also of improving the affordability of both fixed and mobile services.

The Alliance for Affordable Internet (A4AI) measures the underlying factors affecting internet affordability and notes the impact of affordability on marginalised groups: *“Access challenges are felt more acutely among certain populations as a result of geographic, economic, gender and socio-cultural factors, with marginalised or vulnerable groups often the hardest hit. Rural Internet users have reduced access when compared with their urban counterparts; low-income populations are disproportionately under-represented online; and persistent income gaps, coupled with engrained social and cultural norms, keep women and other marginalised populations both from being able to afford Internet services and from being able to use the Internet freely.”*

Overall, analysis suggests that three groups are the least likely to be able to access affordable Internet:

- Those living in extreme poverty
- Women
- Those living in rural areas
- The less abled

Addressing the Internet access gender gap is a particular concern. The extent of the gap varies from region to region — in parts of Europe and Central Asia, research has found that 30% fewer women than men access the Internet; in Sub-Saharan Africa, this figure jumps to 45%. The gap widens in rural areas — in some rural and remote areas of Asia, for example, it was found that men's access to the Internet outnumbers women's access by 50%.

---

<sup>2</sup> The Alliance for Internet Affordability notes in its latest report that about 60% of the world's population — most of whom live in developing countries — are offline, and that the cost of fixed broadband remains about 40% of an average citizen's monthly income across the 51 countries surveyed <http://a4ai.org/affordability-report/report/>

A simple analysis of the gender pay gap and its impact on women's ability to afford Internet services clearly illustrates that the price of entry-level mobile broadband service is significantly higher for women. For example, in Malawi, entry-level mobile broadband is at least 40% of women's GNI per capita, compared with 28% of the income of the average Malawian. As the A4AI 2014 Affordability Report notes: *"The implications of women's limited ICT access are significant — both for women, as well as for society at large. Limiting women's access denies them the tools, resources and opportunities available through the Internet, which in turn slows economic growth and social development opportunities."*

### **The underlying causes of limited connectivity**

The main reason the internet is still poorly dispersed and unaffordable for many, especially in rural and remote areas, is the poor distribution of basic telecommunications infrastructure. There are insufficient affordable international and national backbones and last mile/local networks.

There are a large variety of factors that cause this, and local conditions vary considerably from country to country, which underlines the fact that there is no universal 'silver bullet' that will connect the next billion. But the two most common factors are the lack of competitive open markets for basic infrastructure, along with limited access to sufficient radio spectrum. Telecom market environments are still not competitive enough. Legacy incumbent fixed national operators and a few mobile operators continue to dominate the market for broadband. This affects availability, cost, and quality of service. National governments often continue to protect the legacy fixed line operators or the 'new incumbents' – the mobile operators. In addition, ISP licensing requirements can be too onerous for small new market entrants, and interconnection regulations usually still favor or protect the dominant providers.

Conservative spectrum allocation policies also continue to restrict the potential for entry of small new providers looking to make use of the latest technologies. For example fixed broadband operators can use new wireless technologies such as TV White Space (TVWS), and other dynamic spectrum sharing approaches, but so far only the Philippines has made it a national priority to use these systems to help address connectivity issues.

Content controls can also be a major burden in some countries with restrictive policies on open access to the internet. There are efforts by some governments to restrict access to content from outside their territories and to suppress content originating in their territories, in contravention of international human rights instruments. These include laws and regulations that restrict free discussion on internet forums and social media, as well as requirements to limit access to some web sites, and on the other hand, lack of protections for intermediary liability

For people who cannot afford their own equipment and connectivity, or who only have access in their place of work, public access facilities could offer an effective alternative, however there is limited investment in libraries, telecentres, and multi-purpose community centres amenable to provision of public internet access. Support for provision of public access has unfortunately fallen off the agenda in most countries as a result of the rapid

growth of internet-connected mobile phones, which has been combined with views that public access is just a stepping stone to private access.

However, there is now growing recognition<sup>3</sup> that there will continue to be a need for public access for the foreseeable future. Large-format screens and high definition multimedia provide a more immersive learning, professional or entertainment experience, but may be too slow or costly via a mobile connection. In addition it may take many years for some countries to reach high levels of household connectivity, and therefore public ICT access will remain a critically important service.

A variety of indirect factors may also serve to limit internet accessibility; grid power is often unavailable or costly, basic ICT literacy may be lacking and high import duties may be levied on ICT equipment, which, along with luxury taxes on internet and voice services, further reduces their affordability. In addition lack of relevant local content and applications limits demand for the internet.

### **Needed Policy Responses to the Access Gap**

Significant resources will be needed to support national policy and regulatory changes to improve affordability and coverage of broadband networks. The most important policy initiatives required are listed below, which could be encapsulated in the formulation or updating of comprehensive national broadband strategies. Again 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

The benefits of these strategies in connecting the next billion are largely self evident, with the possible exception of infrastructure sharing, the impact of which is often underestimated. To support improved national broadband policies, APC recently commissioned a study on infrastructure sharing in emerging markets<sup>4</sup>. The report, called *Unlocking Broadband for All*, found in its global review of infrastructure sharing experiences that

---

<sup>3</sup> In-depth research carried out by the University of Washington found at least one-third of the users had no other means of access to the internet than public access, most users (55%) would use computers less if public access were not available, and public access venues are the first point of contact the internet for most users. For further details see: <https://www.apc.org/en/pubs/public-access-supporting-digital-inclusion-all>

<sup>4</sup> <https://www.apc.org/en/infrastructuresharing>

developing countries can save billions and speed universal broadband access by sharing infrastructure. These savings can be obtained both through sharing telecom infrastructure (such as ducts, fibres and masts) as well as sharing with other utility infrastructure such as roads, power grids, fuel pipelines and rail lines. In urban environments water supply and sewage systems can also provide sharing opportunities. If governments incorporate ducts or fibre in all new roadbuilding and powerline projects, this can make the difference between an economic and loss making investment in backbone infrastructure for a private operator – this benefits of this for encouraging private investment in broadband for remote and rural areas are clear.

There are a variety of other policy strategies for connecting the next billion that could also be mentioned but this submission has focussed on the above for the sake of clarity on the key priorities and also because other submissions have covered other aspects,

### **Targets**

Policies to promote connectivity require measurable targets by which to judge their effectiveness. Measures also need to be pragmatic, rather than exhaustively accurate – they need to be easily obtained, objective, comparable and up-to-date. In this respect the following few simple measures are proposed, aiming to provide not only an indication of the numbers connected but also the level of internet utilization.

Comparison between countries can be useful in identifying effective policies, but the key aim with the use of indicators is to be able to measure progress in a country over time. Therefore the data points should ideally be updatable on a quarterly basis and authorities may need regulations to ensure that network operators provide the necessary data in a timely fashion.

- Number of broadband subscriptions per capita (%). 'Broadband' being defined as a connection of at least 512Kbps today but growing to the higher rates available in developed countries. Data should be disaggregated according to gender, age, geographic area and minority groups. Full data disaggregation may only be feasible on an annual basis.
- Data traffic per capita (bps). Defined as the total of domestic network data traffic generated by broadband users divided by the total population.



These two measures when taken together are all that is necessary to provide a general indication of the status of the local connectivity environment. A number of additional indicators can be useful in helping to determine the cause of problems. These are:

- Network coverage (% of geographic territory in which connectivity is available)
- Cost of 10Gb / month of broadband data traffic relative to average income levels (% of GNI/capita). 10Gb is a common tariff package and on a monthly basis is a desired minimal level of utilisation, corresponding to a 10-20 hours per month of video.
- Average download & upload speed per subscriber (Mbps)
- Autonomous System Numbers (ASNs) per capita. AS numbers are used by IP networks that are reliable – they are needed if the network has more than one connection to the rest of the internet. As such they provide a reliable indication of the extent of independent network development in the country.

## Summary

In summary the key points are:

1. Access inequalities are more visible when disaggregated by disadvantaged groups – particularly women, the poor, rural populations and the less abled
2. Expansion of mobile broadband by itself will not meet the connectivity needs of the next billion
3. High internet access costs continue to be the biggest factor stopping the next billion getting connected
4. Implementing policies to connecting the next billion will also vastly improve the connectivity of those who are already connected but are constrained in their use of the internet by slow speeds, high costs or other barriers
5. The main reason the internet is still poorly dispersed and unaffordable for many is the poor distribution of basic telecommunications infrastructure
6. There is no universal 'silver bullet' that will address these issues and connect the next billion
7. The two most common factors are the lack of competitive open markets for basic infrastructure, along with limited access to sufficient radio spectrum
8. Content controls can also be a major burden in some countries with restrictive policies on open access to the internet
9. Public access facilities are also an important means of addressing the connectivity needs of the next billion, but there is limited investment in libraries, telecentres, and multi-purpose community centres
10. Indirect factors also limit access to the internet, including limited energy supply, lack of basic ICT literacy, few applications and content of local relevance, and high import duties or other taxes on ICT services
11. Comprehensive and up-to-date national broadband strategies which address the policy barriers are needed
12. Clear targets and monitoring are needed to ensure that the effectiveness of policies can be measured