THE POLICY TOOLS MAKING INTERNET ACCESS MORE AFFORDABLE ACROSS THE WORLD

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POLICY OPTIONS FOR CONNECTING THE NEXT BILLION

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INTRODUCTION

While there is a near universal recognition of the benefits of Internet access for all countries, over 60% of the world's population is still not online. Regional offline rates range from an average of 50% of those living in Latin America and the Caribbean[2], to 67.6% in Asia, and 81% in Africa.[3] There are many reasons why such large proportions of populations in these countries are not using the Internet, including low levels of digital literacy, lack of relevant content, and insufficient infrastructure. The primary challenge to increasing online access, however, is affordability.

In 2011, the United Nations Broadband Commission set a threshold of affordability where a basic broadband Internet package should cost, at most, 5% of average income (*i.e*., GNI/capita) in a given country. In its 2014 Affordability Report, the Alliance for Affordable Internet (A4AI) showed that only 23 out of the 51 emerging and developing countries surveyed were able to meet this threshold; in all the other countries surveyed, Internet costs remained higher than the 5% threshold.[4] In fact, the costs as a proportion of average income were prohibitively higher for the poor (*i.e.*, those earning less than US$2/day), women, and those living in rural areas.[5]

To address this challenge, A4AI supports policy and regulatory reforms in line with international best practices that are proven to help reduce industry costs and ultimately improve affordability. It does so by helping to establish multi-stakeholder national coalitions who then focus on reducing Internet costs in their countries. These coalitions include members from civil society, private sector companies, academia, and the public sector, who together identify key policy areas for reform and action.

In this brief paper, we will discuss some of the key best practices for reducing the cost of an Internet connection, using experiences from A4AI and others. Our hope is that policy-makers working at both the international and national levels can get a better sense of the kinds of policy tools that are proven to reduce costs and make Internet services more affordable. More specifically, we focus on three best practice areas that can directly lower industry cost structure and end-user costs: (1) infrastructure sharing; (2) a balanced approached to taxation of information and communication technology (ICT) goods and services; and (3) the effective use of Universal Service and Access Funds (USAFs).

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[2] World Bank (2015), World Development Indicators. http://data.worldbank.org/products/wdi
[3] ITU (2014), Measuring the Information Society Report. https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf
[4] Alliance for Affordable Internet (2014), 2014 Affordability Report. http://a4ai.org/affordability-report/report/
[5] None of the 51 countries surveyed in the 2014 Affordability Report were able to meet the UN 5% target for those earning less than US$2/day.

INFRASTRUCTURE SHARING

When mobile phone operators or other Internet service providers share or use the same infrastructure they are also able to lower their capital expenditure and operating costs. This, in turn, can lead to lower Internet service prices and increased access for the consumer, and is therefore an important strategy for both public and private sector entities.

There are two main forms of infrastructure sharing: active and passive. When an operator *actively* shares its infrastructure, it permits other operators to use parts of its radio access network (*i.e.*, the interface between the user's mobile phone and other users). This includes sharing electronic components of the network, including antennae, switches and microwave equipment.

Passive sharing is more common and occurs when operators share non-electronic components of their networks (*e.g.*, air conditioners or power generators), or deploy their equipment in the same physical space (*e.g.*, two operators each setting up their own antennae on shared mobile phone towers or masts). Other forms of passive sharing including the sharing of ducts, rights of way, and housing for equipment.

A recent study by Deloitte LLP on behalf of the Association for Progressive Communications estimated that the savings from two operators sharing the same tower infrastructure could be 45% of the cost of a single operator deployment. The report noted that if all of the forecasted 15,000 towers to built in Africa this year were shared between at least two operators the total cost savings could be US$675 million.[6] Given these benefits, it is important for policy-makers and regulators to create an environment where infrastructure sharing is encouraged, and is perceived as attractive by the operators.

One strategy that governments can pursue is to put in place guidelines (and, where necessary, supporting regulations) for sharing. Guidelines issued by the Communications Authority of Kenya state that site sharing (*e.g.*, tower sharing) should be the first consideration for operators when evaluating their infrastructure requirements. Furthermore, where a request to share a site is denied, the operator denying the request has to explain their reasons for doing so, and the requesting operator is permitted to file a complaint.[7] The Nigerian Communication Commission (NCC) has similarly implemented guidelines on passive infrastructure sharing, which state that requests for sharing can only refused on technical grounds or a lack of capacity. The guidelines also empower the NCC to act as an intermediary to resolve disputes and facilitate agreements between operators.[8] Establishing guidelines such as these can make the process of infrastructure sharing clearer for operators and help to reduce uncertainty.

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[6] Deloitte & APC (2015), Unlocking broadband for all: Broadband infrastructure sharing policies and strategies in emerging markets. https://www.apc.org/en/system/files/APC%20-%20Unlocking%20broadband%20for%20all%20Full%20report_1.pdf
[7] Deloitte & APC (2015), Unlocking broadband for all: Broadband infrastructure sharing policies and strategies in emerging markets. https://www.apc.org/en/system/files/APC%20-%20Unlocking%20broadband%20for%20all%20Full%20report_1.pdf
[8] Nigeria Communications Commission (2006), Guidelines on Collocation and Infrastructure Sharing. http://www.ncc.gov.ng/files/Legal-Guidelines_Collocation_and_Infrastructure_Sharing.pdf

A related issue is that of ensuring open access to infrastructure or capacity. For example, fibre cables often require significant investments; ensuring that new market entrants or other operators can also access this infrastructure will result in lower overall capital expenditure requirements on their part. This can lead to a quicker return on investment and a reduced risk of network redundancy, which in turn can result in more service-based competition and greater affordability. This was the case in São Tomé and Príncipe, where the regulator (Autoridade Geral De Regulação) and the incumbent operator, Companhia Santomense de Telecomunicações (CST), agreed that CST would provide open access to the Africa Coast to Europe cable infrastructure that it managed in that country. This encouraged the entry of a second major operator (Unitel-STP) in 2014 — a move that has resulted in increased competition. Although this is a recent example, we can expect prices to decrease as a result of a more competitive market and, in turn, for Internet use to increase.

Infrastructure sharing itself can also lead to new business opportunities. This is the case with tower sharing. While mobile phone operators initially built and managed their own towers, they later created subsidiaries that specialised in this area, and even later, sold off these companies to focus on their core businesses. In recent years, many independent tower companies have established themselves across the globe. However, here again it pays to have the right kind of regulatory environment. One well known example is that of India where, in addition to guidelines on sharing, the regulator also provided incentives that made it cheaper to establish shared towers in urban areas and offered subsidies for installing shared towers in rural areas. These factors help explain why India has one of the largest independent tower sharing markets in the world.[9]

TAXATION AND TELECOMMUNICATIONS

Taxation has a significant impact on consumer affordability for all goods and services. Governments often focus too much on the potential short-term revenue gains from taxing ICT products and services instead of considering the positive medium to long-term economic impacts of, for example, increased Internet use. As a result, ICTs, like mobile phone handsets and laptops, are taxed at higher rates than goods in other sectors. The result is a tax regime that can actually undermine the government's overall goal of using ICTs to drive social and economic development.

A balanced taxation policy for the telecommunications sector can be difficult for governments with budgetary constraints to consider and implement, but is critical to reducing the cost to connect and enabling more people to come online. When it began work in early 2014, the A4AI Multi-stakeholder Coalition in Ghana identified high taxation levels in the ICT sector as a primary barrier to increasing access to affordable Internet. At the time, taxes accounted for 35%

[9] See for example, TowerXchange. Issue 13. July 2015 (pg. 33).

of the total cost of a smartphone; the Coalition thus focused its initial advocacy efforts on the removal of the 20% import duty levied on smartphones. As a result of this work, the Government of Ghana announced in November 2014 their intention to remove the duty, which will lower the cost of smartphones in the country. They were successful in convincing the government to make this change in part because of the range of private sector, civil society, and public sector interests represented by the Coalition and strong leadership within the group.

A similar effort is underway in Mozambique, where the A4AI-Mozambique Multi-stakeholder Coalition is working to reduce the custom duties on telecoms equipment and devices from 7.5% to 2.5%. The A4AI-Mozambique Coalition argues that the loss of revenue for the government in the short term would be offset by duties from increased consumption of these devices — made possible by cheaper prices — and, more importantly, other multiplier effects that follow from the increased diffusion of ICTs in the economy, such as economic growth, innovation, and new business opportunities.[10]

One tangible example of these kinds of effects is illustrated by the removal of VAT on laptops and desktops by the government of Colombia in 2007. This move was associated with a 110% increase in demand and an 83% rise in tax revenues, as a result of the subsequent increase in purchases of PCs and related services (*e.g.*, software, support, and other hardware).[11] The removal of VAT was also associated with an increase in Internet use.

The effects of improved taxation may be even more noticeable when applied to mobile phones, which have become the primary form of Internet access for people across many developing countries. For example, in 2009 the government of Kenya decided to remove the imposition of VAT on mobile handsets. What followed was an estimated increase in the mobile penetration rate from 50% to 70%.[12] Similarly, Ecuador's removal of an excise tax levied on mobile phone subscriptions (on top of an existing VAT) in 2008 led mobile penetration rates to increase from 70% to over 110%.[13] While the increase in penetration rates does not automatically mean an equivalent increase in unique subscribers, we can still infer that a larger proportion of the population now has a mobile phone subscription.

UNIVERSAL SERVICE AND ACCESS FUNDS

Thus far we have implied that the costs of Internet services will decrease once governments create the right incentive and regulatory structure and private companies invest accordingly. This

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[10] Alliance for Affordable Internet (2015), Driving Economic Growth in Mozambique: Recommendation for Strategic Taxation for Telecommunications. http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2015/07/A4AI-Mozambique-Rationale-for-Customs-Duty-Reduction_Full-Analysis_English_FINAL.pdf

[11] Intel (2012), The Merits of Reducing Taxes on Personal Computers. https://www-ssl.intel.com/content/dam/www/public/us/en/documents/white-papers/broadband-pc-tax-policy-white-paper.pdf

[12] Deloitte & GSMA (2011), Mobile telephony and taxation in Kenya. http://www.gsma.com/publicpolicy/wp-content/uploads/2012/03/mobiletelephoneandtaxationinkenya.pdf

[13] Deloitte & GSMA (2012), Mobile telephony and taxation in Latin America. http://www.gsma.com/publicpolicy/wp-content/uploads/2012/12/GSMA-2012-Latin-America-Tax-ReportWEBv2.pdf

in turn will lead to higher adoption and use. However, this logic may not follow for all segments of the population. This is particularly the case for women, low-income populations, and for those that live in areas (*e.g.*, rural communities) where businesses may perceive the provision of services as unprofitable or unsustainable without ongoing support. For these communities, the price of an Internet connection is often completely out of reach, and so they remain offline.

Universal Service and Access Funds (USAFs) have been used by governments for several decades now as a way of addressing the communication needs of these underserved communities. USAFs are typically financed by contributions from telecommunications companies; money collected in a USAF is used to fill in existing gaps in the market-based provision of services, through a combination of subsidies or incentives. A clear plan, targeted at those populations that have been excluded from the digital revolution as a result of economic or cultural factors, tend to be the most successful in promoting affordable and equitable access. The example mentioned above in India, where the government offered incentives for tower sharing in rural communities, was supported through such a fund.

Given the large amount of money involved, it is important that USAFs have significant autonomy, which allows them to act in a highly transparent and open manner. This transparency is critical both to eliminate possible corruption, and to allow for effective monitoring and evaluation of USAF operations. In Peru, the Fondo de Inversión de Telecomunicaciones provides annual reports on actual performance versus targets for the year. Similarly, Nigeria's Universal Service Provision Fund has a well-publicised and transparent bidding process.

Another challenge is the need for legal clarity with respect to the operation and management of USAFs. Without proper legislation governing the Fund, it can be much more difficult to resolve disputes around contributions or award of subsidies. Also, it can be difficult to use Funds — many of which were solely created to extend telephone/voice access to rural areas before access to data became the priority — to extend Internet and broadband access. Finally, many Funds have been hampered by a lack of internal capacity. This includes having adequately trained staff, equipment, and strategic plans.[14]

USAFs have a very important role to play in the adoption of broadband Internet services — especially as it has become increasingly important to address factors on both the demand and supply sides. Many governments have appreciated this and are incorporating USAFs into their national broadband plans. USAFs are being used to support infrastructure development; in Pakistan, for example, the Universal Service Fund has supported the development of a 5000 km fibre optic backbone network to improve broadband connectivity in rural communities.[15] Similarly, the Agence Nationale du Service Universel des Télécommunications/TIC in Côte

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[14] Alliance for Affordable Internet (2015), Universal Access and Service Funds in the Broadband Era: The Collective Investment Imperative. http://a4ai.org/wp-content/uploads/2015/03/A4AI-USAFs-2015_Final-v.2.pdf
[15] Ministry of Information Technology (2013), Pakistan Universal Service Fund, Optic Fiber Project. http://www.usf.org.pk/project.aspx?pid=6

d'Ivoire is currently implementing a national broadband programme that aims to establish a 7000 km fibre optic backbone network throughout the country, with an emphasis on rural areas.[16]

Of course improving connectivity in rural areas does not only include large-scale infrastructure investments. The Ghana Investment Fund for Electronic Communications has provided funding for a range of small-scale projects that address the last-mile connectivity and equipment needs of libraries, schools, post offices, and prisons.[17] The Universal Service Provision Fund in Nigeria (one of the largest in Africa in terms of financing) has also invested in a range of projects to support rural last mile connectivity.

Another important way in which USAFs are improving affordability is by subsidising access to devices. In recent years, the Universal Service Provision Fund in Malaysia has provided netbooks to low-income households. Young persons (21-30 years) have also been able to purchase smartphones at a subsidised rate.[18] These subsidies are one of the reasons Malaysia was able to increase broadband usage from 31% in 2009 to 66% in 2013.[19] In Jamaica, the Universal Service Fund is supporting a national programme to provide tablet computers to students across the country, with an emphasis on primary and secondary schools.[20]

Finally, these strategies should be designed to complement specific needs within each country, such as digital literacy and awareness programmes to help people appreciate the benefits of and ways to use the Internet. Civil society groups can play an important role in these efforts. USAFs can also support parallel programmes such as e-government, local content production, and small and medium enterprise development.[21]

CONCLUSIONS AND SUMMARY

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. Indeed, while several of the best practices mentioned above are well known, many countries are yet to adopt them. By highlighting a few important best practices that have worked to reduce costs, and charting how these policy shifts occurred, we hope to encourage more countries to consider implementing similar policy and regulatory reforms.

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[16] National Agency of the Universal Service of Telecommunications, Program National Broadband Network (RNHD). http://www.ansut.ci/en/projets/
[17] Ghana Investment Fund for Electronic Communications (2013), Universal Access to Electronic Communications Programme. http://www.gifec.gov.gh/index.php?option=com_content&view=article&id=84:uuniversal-access-to-electronic-communications-programme&catid=38:projects&Itemid=248
[18] Alliance for Affordable Internet (2013), 2013 Affordability Report 2013. http://a4ai.org/wp-content/uploads/2014/01/Affordability-Report-2013_Final-2.pdf
[19] Alliance for Affordable Internet (2013), 2013 Affordability Report 2013. http://a4ai.org/wp-content/uploads/2014/01/Affordability-Report-2013_Final-2.pdf
[20] E-Learning Jamaica, Tablets in Schools. http://www.elearnja.org/tabletsinschools/
[21] Alliance for Affordable Internet (2015), Universal Access and Service Funds in the Broadband Era: The Collective Investment Imperative. http://a4ai.org/wp-content/uploads/2015/03/A4AI-USAFs-2015_Final-v.2.pdf

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.[22] 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.[23]

The third area we examined was the use of USAFs 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.

We recognise that policy change is neither a straightforward nor easy process. What our experiences at A4AI have shown is that the effort to create change can be augmented by national multi-stakeholder coalitions. It should be clear that many of the above mentioned strategies will require partnerships between the public sector, operators, and civil society groups to be successful, even where government leadership in shaping policy is essential. Indeed, while these policy tools will be finalised and used by government, holistic understanding of the problems and the solutions is only achieved through collaboration between all stakeholders. Uniting a wide range of actors around the common goal of more affordable Internet access will be critical to the successful implementation of these best practices, and to connecting the billions that remain offline today.

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[22] GSMA (2015). Rural coverage: strategies for sustainability.
https://gsmaintelligence.com/research/?file=53525bcdac7cd801eccef740e001fd92&download
[23] Alliance for Affordable Internet (2015), Driving Economic Growth in Mozambique: Recommendation for Strategic Taxation for Telecommunications. http://1e8q3q16vyc81g8l3h3md6q5f5e.wpengine.netdna-cdn.com/wp-content/uploads/2015/07/A4AI-Mozambique-Rationale-for-Customs-Duty-Reduction_Full-Analysis_English_FINAL.pdf