

# **Submission to the Nigerian Communications Commission on 3.5GHz Auction**

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## Introduction

The importance of access to affordable broadband is now a commonplace insight since the outbreak of COVID-19. However, the pandemic has revealed something even more important for policy-makers and communication regulators; it has made clear that inclusion must be a top priority if the Internet is not to become an amplifier of inequality.

Communication technology is a natural amplifier of human activity. Those with affordable access to communication move forward while those without are quite literally invisible to the connected. Broadband networks are delivering ever greater utility, from education to commerce to social safety nets with the unfortunate side effect that the social and economic gap between those with affordable access and those without increases by default. The inescapable conclusion from this is that inclusiveness, making sure everyone has affordable access to broadband, must be a pre-eminent priority of policymakers, especially in developing countries.

This joint submission by the Centre for Information Technology and Development (CITAD) and the Association for Progressive Communications (APC) is in response to the Draft Information Memorandum on 3.5 GHz Spectrum Auction published by the Nigerian Communications Commission (NCC) as part of the process for the licensing of the 3.5GHz Spectrum. The goal of this paper is to assist the Commission in formulating the most optimal licensing strategies to ensure that the 3.5Ghz spectrum will be available to serve the needs of rural/remote communities and smaller operators in Nigeria post-auction.

## The Worsening Digital Divide & Challenge of Rural Access

Liberalisation and privatisation of the telecommunications market has led to massive investment in telecommunications infrastructure leading to the unprecedented spread of telecommunications networks around the world, not to mention the growth of the internet. But the growing value of "being connected" combined with slowing growth in poor and rural areas suggest that specific provisions need to be made to incentivise and lower the cost of access to the unserved and under-served. The GSMA have summed up the issue succinctly in their policy paper on Enabling Rural Access<sup>1</sup>:

*"The lack of coverage in rural areas is the consequence of a basic economic challenge: deploying infrastructure in remote areas can be twice as expensive, while revenue opportunities are as much as ten times lower, a combination that deeply affects the business case for MNOs to deploy infrastructure."*

While the application of universal service funds in some developing countries have been able to mitigate this problem by subsidising the capital costs of rural deployments by MNOs, the operational costs still do not match the income levels in rural areas even when coverage obligations are imposed on these operators. The digital divide in Nigeria is huge: at least 35million people live in areas that are not sufficiently covered by networks, if at all. This suggests that it may be necessary and indeed time to introduce alternative business models and regulation to ensure affordable service delivery in rural and remote areas.

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1 Enabling Rural Coverage: Regulatory and policy recommendations to foster mobile broadband coverage in developing countries. [https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/02/Enabling\\_Rural\\_Coverage\\_English\\_February\\_2018.pdf](https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2018/02/Enabling_Rural_Coverage_English_February_2018.pdf)  
GSMA 2018

The Roll Out, Coverage and Service Obligations in Section 4.9.5.5 of the Information Memorandum<sup>2</sup> suggest that largely urban deployments are expected for the 3.5GHz band given the requirement of “at least one-third (1/3) of the population of each state capital.” This is in line with what might be expected from successful bidders who would likely be focused on network investment in areas deemed most lucrative in order to recoup their investment in the spectrum license.

Yet new research suggests<sup>3</sup> that 3.5GHz band can be successfully deployed for rural access as well. It is also true that the cost of eNodeB LTE base station technology has plummeted in recent years with a wide ecosystem of manufacturers now producing LTE and 5G equipment for a fraction of the cost of what radio equipment cost even ten years ago. If affordable LTE and 5G technologies are within the financial reach of smaller operators, then all that holds them back is access to spectrum. Given that spectrum which is in high demand in urban centres often remains unused in rural areas, there is an opportunity for NCC to establish a win-win scenario with spectrum auctions that guarantee protections for successful bidders while unlocking spectrum in areas where primary license holders have little interest.

The Commission has made great strides in infrastructure sharing, most notably through the Guidelines on Co-Location and Infrastructure Sharing (C/IS), implemented in June 2021, which ushered in a new regime in the Nigeria’s telecommunications industry enabling licensed operators to share both passive and active network assets among themselves. However, this regime does not address areas in which infrastructure has not been deployed. As we point out in this submission, there is a difference between a general intervention as the C/IS and a more specific intervention as we propose, unlocking spectrum in areas where licensees have no intention of deployment in the near future. The latter will have the additional effect of bringing Nigeria in line with the current global trend towards dynamic shared spectrum and, more importantly, further assist in providing smaller operators with the opportunity to participate in closing the digital divide.

## **Enabling Digital Inclusion through Regulatory Intervention**

We have already seen the economic value that can be unlocked when wireless technologies are made available through a combination of affordability and regulatory accessibility through license exempt regulation or WiFi. WiFi technologies are estimated to generate US\$16 billion in economic value in Nigeria alone<sup>4</sup>. License exempt spectrum is the one avenue that small operators have to enter the wireless broadband market. Small operators have leapt to take advantage of improvements in WiFi technologies as both an access and a backhaul technology. Relative newcomers like Tizeti<sup>5</sup> and Fiam<sup>6</sup> have been able to roll out extensive WiFi networks thanks to its license exempt status and extreme low cost. Many other operators are doing the same. NCC licensed seven new ISPs in 2018<sup>7</sup> alone bringing the total to ninety-nine licensed ISPs.

However, WiFi has distinct limitations, especially when trying to service more sparsely populated regions. The restricted power output of WiFi which enables its license exempt status also has the impact of significantly

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2 Draft Information Memorandum on 3.5 GHz Spectrum Auction <https://www.ncc.gov.ng/docman-main/licensing/license-auction-reports/3-5ghz-spectrum/1006-3-5ghz-spectrum-information-memorandum/file> NCC October 2021

3 J. Lun; P. Frenger; A. Furuskar; E. Trojer et al. 5G New Radio for Rural Broadband: How to Achieve Long-Range Coverage on the 3.5 GHz Band <https://ieeexplore.ieee.org/document/8891556> IEEE 2019

4 Economic value of Wi-Fi® forecast in Africa, Middle East, and India <https://www.wi-fi.org/news-events/newsroom/economic-value-of-wi-fi-forecast-in-africa-middle-east-and-india> Sept 2021

5 Tizeti home page <https://www.tizeti.com/>

6 Fiam home page <https://www.fiam.ng/>

7 Seven New Internet Service Providers (ISPs) Issued Licences by the NCC <https://technext.ng/2018/04/09/7-new-internet-service-providers-isps-issued-licences-ncc/> TechNext April 9, 2018

increasing the number of access points required to cover a given region. What a single LTE base station can cover might require dozens or even hundreds of WiFi access points in order to offer the same coverage.

If action is not taken to empower small operators with access to broadband spectrum beyond license exempt frequencies, the divide between large and small operators is likely to grow as is the digital divide between the relatively-wealthy, connected urban centres and poorer rural regions.

## Shared Spectrum

There is an opportunity to bridge the chasm that exists between expensive exclusive spectrum licensing and the license exempt ecosystem in the 3.5Ghz auction by enshrining “use-it-or-share-it” provisions in the licenses that will be issued to winning bidders. Recognising that large amounts of licensed spectrum remain unused, especially in rural areas, regulators around the world have begun to implement shared spectrum regulation that continues to empower spectrum license holders while at the same time unlocking access to spectrum in areas where operators have no strategic interest. In the United States this has been implemented in the 3.5GHz band with the Citizens Band Radio Service (CBRS) which contains three tiers of access licensing ranging from license-exempt to exclusive use<sup>8</sup>. In the United Kingdom, the regulator (OFCOM) introduced a Local Access License<sup>9</sup> in 2019 which offers access to spectrum that has already been licensed to existing mobile network operators in locations where they are not using their spectrum. In the same year, the German regulator announced spectrum sharing in 3.7GHz and 3.8GHz<sup>10</sup>. Even now the Canadian regulator has launched a consultation on a shared spectrum strategy to support rural and remote deployment in Canada<sup>11</sup>. The proposed strategy in Canada builds on the model developed by OFCOM. Each of these countries chose to attach specific “use-it-or-share-it” provisions to IMT spectrum license even though their regulatory frameworks already support C/IS”. All of the above suggests that now is the time to invest in shared spectrum regulation that can unlock affordable access for all Nigerians.

## Right to Exclusivity vs Right to Protection from Interference

The key to opening up access opportunities lies in the framing of IMT spectrum licenses. Nation-wide spectrum licenses have historically provided a guarantee of exclusivity of spectrum access across an entire country. As such, any decision to share spectrum is then vested in the license holder who may not have significant incentive to share spectrum. Things began to change however in 2012 with the publication in the United States of a presidential report on *Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth*<sup>12</sup> which proposed that the right to exclusivity in spectrum licensing be transformed into a right to protection from interference. This subtle but profound change enables the regulator to implement spectrum sharing in a manner

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8 FCC: Citizens Band Radio Service (CBRS) <https://www.fcc.gov/wireless/bureau-divisions/mobility-division/citizens-band-radio-service-cbrs> April 13, 2017

9 OFCOM: Local Access Licence - Guidance document (2019) [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0037/157888/local-access-licence-guidance.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0037/157888/local-access-licence-guidance.pdf)

10 German Telecom Regulator awards 5G private network licenses in the 3.7GHz to 3.8GHz band <https://techblog.comsoc.org/2020/09/25/german-telecom-regulator-awards-5g-private-network-licenses-in-the-3-7ghz-to-3-8ghz-band/> IEEE ComSoc Technology Blog 25 Sept 2020

11 Consultation on New Access Licensing Framework, Changes to Subordinate Licensing and White Space to Support Rural and Remote Deployment <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf11717.html> August 2021

12 Report to the President on Realizing the Full Potential of Government-Held Spectrum to Spur Economic Growth. Executive Office of the President. President’s Council of Advisors on Science and Technology. July 2012 [https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/peast\\_spectrum\\_report\\_final\\_july\\_20\\_2012.pdf](https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/peast_spectrum_report_final_july_20_2012.pdf)

that preserves all the rights of the primary licensee but unlocks the potential of unused spectrum. An example of this kind of clause can be found in Section 4.2 of the OFCOM 800MHz and 2600MHz license<sup>13</sup> which states:

*4.2 For the avoidance of doubt the Licences will not guarantee exclusive use of the spectrum awarded. In the future we may grant additional authorisations to allow the use of all, or part, of the spectrum, including the spectrum that is the subject of this Award Process. We would develop and consult on the conditions of use under any such additional authorisations in order to manage the risk of harmful interference.*

It can also be found in the renewal of the PCS license<sup>14</sup> in Mexico:

*"8.6. Services for secondary use. The Institute reserves the right to grant other authorisations for the use, development and exploitation of the frequency bands that are the subject of this Radio Spectrum concession, or portions thereof, for secondary use. In such case, the use of the bands subject to this Radio Spectrum concession shall be protected against harmful interference. "*

Clauses such as this extends spectrum sharing beyond generic sharing frameworks as they have in the UK with the Local License framework and in Mexico where the regulator has set aside spectrum for underserved regions. Clauses such as the above enable a “use-it-or-share-it” approach to spectrum licensing. This contrasts with “use-it-or-lose-it” policies which have proven challenging to implement given the significant sunk costs of the licensees.

## Summary

There is a strong link between high spectrum costs and the fact that successful bidders have to charge high prices to recoup their investments. Under this scenario, citizens are the ultimate losers and any perceived gains from high spectrum fees tend to be quite ephemeral. For these reasons, governments around the world are beginning to move away from seeing spectrum principally as a means of mobilizing resources into the coffers of government, and are prioritizing the attainment of the universally acknowledged access rights of their citizens, which cannot be fulfilled when spectrum is either expensive, unused or even hoarded, contrary to the goals – in this instance – of the Nigerian National Broadband Plan 2020 – 2025 (NNBP).

The sharing of the 3.5Ghz spectrum should have the effect of unlocking spectrum for rural access without disrupting the network investment plans or deployments of the successful bidders in the 3.5GHz auction. It will have the impact of unlocking innovation in the use of a new generation of low-cost LTE/5G technologies to address affordable access for populations in Nigeria that are most at risk of digital (and economic) exclusion. Use-it-or-share-it provision can unlock access to spectrum without disrupting well-established spectrum auction processes that have been in place for many years. It will also have the benefit of mitigating the risk associated with all spectrum auctions of a failure to adequately invest in network build-out, especially in rural and economically poor regions.

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13 OFCOM: The award of 800 MHz and 2.6 GHz spectrum Information Memorandum. July 2012

[https://www.ofcom.org.uk/data/assets/pdf\\_file/0022/32872/im.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0022/32872/im.pdf)

14 [https://rpc.ift.org.mx/vrpc/pdfs/68531\\_190715125729\\_364.pdf](https://rpc.ift.org.mx/vrpc/pdfs/68531_190715125729_364.pdf) Original text in Spanish. "8.6. Servicios para uso secundario. El Instituto se reserva el derecho de otorgar otras autorizaciones para el uso, aprovechamiento y explotación de las bandas de frecuencias objeto de la presente concesión de Espectro Radioeléctrico, o porciones de las mismas, para uso secundario. En tal caso, el uso de las bandas materia de esta concesión de Espectro Radioeléctrico contarán con protección contra Interferencias perjudiciales."

## **Recommendations**

We appeal to NCC to carefully consider the inclusion of “use-it-or-share-it” provisions in the 3.5GHz spectrum license documentation as a precursor to an enabling environment for greater digital inclusion in the country and as a prelude to a full audit and/or future consultation on shared access to spectrum in underserved regions.

