

**Chukwuyere Ebere Izuogu LL.B (UNIBEN), LL.M
(Hannover) ACI Arb, AMBCS**

24 November 2020

The Executive Vice Chairman
The Nigeria Communications Commission
Plot 423, Aguiyi Ironsi Street,
Maitama District
Abuja



ATTENTION: DIRECTOR, LEGAL AND REGULATORY SERVICES

Dear Sir,

DRAFT DEPLOYMENT PLAN FOR 5G TECHNOLOGY IN NIGERIA

Please find below my comments as a stakeholder in respect of subject matter.

I remain committed to the development of the telecommunications sector in Nigeria and would be available to respond to any clarification the Commission may have with respect to this submission.

Please be assured of my highest consideration.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Chukwuyere Ebere Izuogu'.

Chukwuyere Ebere Izuogu

cc: The Honourable Minister of Communications and Digital Economy

**Chukwuyere Ebere Izuogu LL.B (UNIBEN), LL.M
(Hannover) ACI Arb, AMBCS**

Dear Sir,

DRAFT DEPLOYMENT PLAN FOR 5G TECHNOLOGY IN NIGERIA

Please find below my comments as a stakeholder in respect of subject matter.

I am a Solicitor in Streamsowers & Köhn¹ and a Research Fellow at the African Academic Network on Internet Policy,² where my practice and research focus are primarily in the area of telecommunications law and policy. I am also the Group Leader of the spectrum, open access and infrastructure sharing working group of the Alliance for Affordable Internet (A4AI) Nigeria coalition,³ an initiative of the World Wide Web Foundation.⁴ These comments are made solely in my personal capacity, and does not necessarily represent the views of any organisation I may be affiliated with.

In these comments, I make recommendation for the Nigerian Communications Commission (the Commission) and other regulatory authorities to encourage the adoption of Open RAN in the deployment of 5G mobile technology. Open RAN is a cost-efficient alternative for building mobile networks, particularly the radio access network (RAN) which constitute about 70 per cent of network investment cost.⁵ With Open RAN, both vendors and operators are able to deploy RAN and its various subcomponents (e.g., radios, hardware and software) according to open protocols and standardised interfaces that allows for more modularity and flexibility in network deployment strategies without being dependent on (or locked-in to) a particular vendor. By opening RAN in this manner, barriers to entry for smaller operators are lowered, healthy vendor competition is promoted and operators are able to realise cost savings of at least 49 percent on CapEx in 5G deployments compared to “closed” deployment options.⁶

It is my conviction that Open RAN presents a huge opportunity for delivering on the objectives of the Nigerian National Broadband Plan 2020 – 2025 (the National Broadband Plan), particularly meeting the 4G/5G mobile coverage of 90 per cent of the Nigerian

¹ <https://sskohn.com/> .

² <https://aanoip.org/about-us/> .

³ <https://a4ai.org/nigeria-africa/> .

⁴ <https://webfoundation.org/> .

⁵ Roy, Hillol. (2018, August 3). 'Tackling the cost of a 5G build' [WWW document] URL <https://www.accenture.com/us-en/insights/strategy/5g-network-build> (visited 2020, November 23).

⁶ Mavenir. (2019). 'Transforming the Radio Access Network Mavenir Virtualized RAN' [WWW document] URL <https://mavenir.com/wp-content/uploads/2019/12/Mavenir-vRAN-SolutionBrief.pdf> (visited 2020, November 23).

population target⁷ and maximizing the expenditure of \$500 Million, the estimated cost of 6000 base transceivers stations (BTS) required for the rollout of 5G across five cities.⁸

In the paragraphs below, I highlight the main value proposition (benefits) for investing in Open RAN technologies for 5G deployment, and subsequently recommend options available in the existing regulatory toolkit that may be relied upon by the appropriate regulatory authority to encourage the adoption of Open RAN and the policy objective sought to be achieved.

I. **Some of the value proposition (benefits) of Open RAN**

a) Open RAN is secure

As acknowledged by the Commission in the consultation document, Open RAN software poses minimal security threat to the operation of a 5G network, and in fact should be invested in as cybersecurity risk mitigation strategy.⁹ Against this, it bears emphasis to mention that Open RAN (both software and hardware) will guarantee the security of a 5G network because the open standards as defined in technical specifications for Open RAN provides a foundational element that effectively addresses any security issue.¹⁰ First, operators deploying Open RAN are able to quickly respond to security threat by immediately isolating and/or replacing the subcomponent unit of the part of the RAN compromised, secondly the intelligence functionality of Open RAN enables operators to deploy security capabilities closer to the network edge and lastly the open environment in Open RAN allows security patches for disaggregated solutions deployed within the mobile network to be proactively updated to respond to security concerns as the circumstance demands, rather than relying on an individual (sole) vendor to make these updates.¹¹

⁷ Nigerian National Broadband Plan 2020-2025 Presidential Committee. (2020, March). 'Nigerian National Broadband Plan 2020 – 2025' [WWW document] URL <https://www.ncc.gov.ng/documents/880-nigerian-national-broadband-plan-2020-2025/file> (visited 2020, November 23), p. 38.

⁸ *Ibid.*, p. 75.

⁹ Nigerian Communications Commission. (2020, August). 'Draft Consultation Document for Deployment of Fifth Generation (5G) Mobile Technology in Nigeria' [WWW document] URL <https://www.ncc.gov.ng/accessible/documents/918-draft-deployment-plan-for-5g-network-in-nigeria/file> (visited 2020, November 23), p. 38.

¹⁰ Open RAN Policy Coalition. (2020, June 25). 'Comments of Open RAN Coalition' [WWW document] URL <https://www.openranpolicy.org/wp-content/uploads/2020/06/Open-RAN-Policy-Coalition-Comment-for-National-Strategy-for-Secure-5G-6.25.2020-as-filed.pdf> (visited 2020, November 23), p. 4.

¹¹ Open RAN Policy Coalition. (2020). 'FAQS' [WWW document] URL <https://www.openranpolicy.org/faqs/> (visited 2020, November 23).

b) Open RAN is cheaper than traditional RAN

Evidence from the deployment of Open RAN has established that it significantly reduces CapEx and OpEx which according to 29 out of 38 operators surveyed say are the primary considerations when deploying mobile network infrastructure.¹² By eliminating vendor lock-in, Open RAN enables operators to cherry-pick the different subcomponent units of RAN from various vendors, thus realising a significant cost savings of at least 49 per cent in CapEx. In the words of Chairman Pai of the Federal Communications Commission (in the US) during the Forum on 5G Open Radio Access Networks on 14 September 2020 “*Open and virtualized radio access networks may help operators deploy more secure, cost-effective 5G networks*”.¹³ This in itself is an economic incentive for adopting Open RAN in the wide scale deployment of (5G) mobile networks, particularly to accelerate the penetration of telecommunications services to unserved and underserved areas thereby accomplishing the objective of Section 1 (c) of the Nigerian Communications Act (the Act) and the National Broadband Plan.

c) Open RAN has been deployed successfully in several jurisdictions

As at the time of this submission, Open RAN has seen more than 60 commercial deployments and trials worldwide,¹⁴ some of which are Vodafone in Turkey, Mozambique, DRC and Ireland. According to Didier Clavero, Chief Technology Officer at Vodafone Ireland on 18 November 2020, “*Delivering Open RAN sites is a pivotal moment in the provision of mobile coverage to rural communities in Ireland, as this pioneering new approach reduces cost, increases flexibility and enables new suppliers to support the expansion of Vodafone's mobile network in hard to reach areas*”.¹⁵ Other examples are Rakuten in Japan, MTN in Zambia, Internet

¹² Comba Telecom. (2020, November 12). ‘Comba & Parallel Wireless Joint Webinar: Macro Open RAN - Network Optimization’ [WWW document] URL <https://www.bigmarker.com/comba-telecom/Comba-Parallel-Wireless-Webinar-Macro-Open-RAN-Network-Optimization> (visited 2020, November 23).

¹³ Federal Communications Commission. (2020, September 14). ‘Forum on 5G Open Radio Access Networks’ [WWW document] URL <https://www.fcc.gov/news-events/events/forum-5g-virtual-radio-access-networks> (visited 2020, November 23).

¹⁴ Jordan, Eugina (2020). ‘The Ultimate Guide to Open RAN: OpenRAN Integration - Part 1: Challenges, Opportunities and Deployment Examples’ [WWW document] URL <https://www.thefastmode.com/expert-opinion/18123-the-ultimate-guide-to-open-ran-openran-integration-part-1-challenges-opportunities-and-deployment-examples> (visited 2020, November 23).

¹⁵ Vodafone. (2020, November 18). ‘Vodafone Ireland Announces Partnership with Parallel Wireless on Ireland's First Open Radio Access Network (OpenRAN), bringing 4G coverage to 30 new locations’ [WWW document] URL <https://n.vodafone.ie/aboutus/press/vodafone-ireland-announces-partnership-with-parallelwireless.html#:~:text=18%20November%202020&text=Vodafone%20will%20become%20the%20first,provider%20of%20Open%20RAN%20solutions>. (visited 2020, November 23).

para Todos Perú (IpT Peru) in Peru and Dish for its 5G Open RAN nationwide network deployment in the US.

In addition, on 18 November 2020, the U.S. House unanimously passed H.R.6624 Utilizing Strategic Allied Telecommunications Act of 2020 or the USA Telecommunications Act, a bill that seeks to establish a program through which the Department of Commerce shall award a grant of \$750 million in funding to financially support a domestic 5G equipment market and Open RAN development.¹⁶ These facts taken collectively together demonstrates the maturity and viability of Open RAN in promoting 5G coordination and competitiveness.¹⁷

d) Open RAN reduces deployment times

Open RAN reduces the average time required to deploy a network due to its inherent ability to leverage on RAN automation and intelligence in improving operational network functions and efficiencies thereby reducing the man-hours expended on operational activities.¹⁸

II. Recommended options in the existing regulatory toolkit that may be relied upon in encouraging the adoption of open RAN in 5G deployment and policy justification

While it is borne in mind that Sections 4 (1) I and 130 (1) of the Nigerian Communications Act (the Act) authorises the Commission to regulate technical standards and specification in the telecommunications sector, the Commission has as a matter of practice adopted a policy of technology neutrality¹⁹ in mobile network infrastructure deployment except for reasons of safety, security and reliability of network systems and platforms. In the light of this, these recommendations are solely made to encourage the adoption Open RAN and falls short of mandating a particular technology standard.

¹⁶ Hill, Kelly. (2020, November 18). 'House unanimously passes \$750 million Open RAN 5G bill' [WWW document] URL <https://www.rcwireless.com/2020/11/18/policy/house-unanimously-passes-750-million-open-ran-5g-bill> (visited 2020, November 23).

¹⁷ Doyle, Mike. (2020, November 18). 'Doyle and Pallone Praise House Passage of three Bills to Protect and Strengthen American Communications Networks' URL <https://doyle.house.gov/media/press-releases/doyle-and-pallone-praise-house-passage-three-bills-protect-and-strengthen> (visited 2020, November 23).

¹⁸ iGillottResearch Inc. (2020, April). 'Open RAN Integration: Run With It' [WWW document] URL <https://www.altiostar.com/open-ran-integration-run-with-it/> (visited 2020, November 23), p. 10.

¹⁹ <https://www.ncc.gov.ng/media-centre/news-headlines/814-ncc-clears-doubts-over-5g-covid-19-and-security>

They are intended to be implemented in both 5G greenfield and brownfield deployment as highlighted in several use cases above. The recommended policy options that may be implemented by the appropriate regulatory authority are;

a) Financial grants

The Commission and/or NITDA may incentivise the adoption Open RAN by making financial grants to operators who deploy Open RAN for 5G, (and as the circumstance may permit RAN equipment vendors who supply Open RAN solutions to operators for use in 5G deployment) in Nigeria. For instance, operators and vendors are both licensees within the meaning of the Act and are required by the Annual Operating Levy (AOL) Regulations to pay annually, an AOL assessed at two and a half percent of their net revenue for the relevant period being its gross revenue less roaming, interconnect and bandwidth costs for the period, while under the National Information Technology Development Agency (NITDA) Act, MNOs, telcos and ISPs are required to pay one percent of their profit before tax to the Funds established under Section 12 (1) of the NITDA Act.

Against this background, the Commission may implement this recommendation by for instance amending the AOL Regulations²⁰ to provide that operators who deploy Open RAN technologies in 5G networks be exempted for a specified period from the payment of AOL or in the alternative that they are eligible for a discount on the payment of their AOL. NITDA on the other hand, may implement this recommendation by relying on its Section 21 (f) authority to apply part of the funds paid into the Fund by MNOs, telcos and ISPs who deploy open RAN for 5G as a rebate paid back to them. It is my view that NITDA's exercise of authority in this regard would be consistent with its functions under Section 6 (a) and (g) of the NITDA Act.

b) Telecommunications agencies procurement preferences for Open RAN based equipment and software

The provision of telecommunications services by government agencies can be done with the intention of promoting Open RAN technologies. To carry out this intention, the Honourable Minister for Communications and Digital Economy (the Minister) as the supervising minister in charge of the telecommunications sector in Nigeria may lawfully issue a policy directive and/or general policy to Galaxy Backbone Ltd, Nigerian Communications

²⁰ Other policy options are issuing a policy directive directly applicable to eligible licensees or amending their license conditions.

Satellite Limited (NigcomSat) and the Universal Service Provision (USP) Secretariat who individually have a mandate to provide telecommunications services (in the case of USP Secretariat to provide universal access services to unserved and underserved areas), to the effect that they design their procurement processes (or service delivery activities) in a manner that gives preferential consideration for Open RAN technologies in the roll out of 5G and non-5G mobile services. An example where this has happened is in Ghana where the Ghana Investment Fund for Electronic Communications (GIFEC) has selected Parallel Wireless,²¹ an Open RAN vendor to provide mobile telephony connectivity to underserved and unserved communities in Ghana.²²

Not only would allowing smaller vendors of Open RAN technologies participate in the procurement process with established incumbents promote competition in public procurement of telecommunications services by eliminating high barriers to entry in the market for RAN and mitigate the exercise of market power by dominant RAN suppliers in line with one of the risk mitigation strategies provided in the National Broadband Plan,²³ it also serves to accomplish policy objective iii of Pillar #5 of the National Digital Economy Policy and Strategy.

c) Support and collaborate in Open RAN research and development (R & D)

NITDA and/or the Commission may explore strategic collaboration with the Standards Organisation of Nigeria (SON), private sector stakeholders and/or academic institutions in partnership with other Open RAN focused industry groups such the Telecom Infra Project (TIP),²⁴ O-RAN Alliance,²⁵ O-RAN Software Community,²⁶ Open Networking Foundation (ONF),²⁷ Small Cell Forum²⁸ and/or Open RAN Policy Coalition²⁹ to advance research knowledge and innovation into Open RAN technologies in Nigeria. This collaboration could be in the form of making financial contributions to Open RAN R & D funds, or by directly participating in such research activities. NITDA's participation in this regard would be consistent with Section 6 (a) and (k) of the NITDA Act, and can justified on the basis of

²¹ <https://www.parallelwireless.com/> .

²² Sharma, Ray. (2020). 'Parallel Wireless to Provide OpenRAN Solution for Deployment in Ghana' [WWW document] URL <https://www.thefastmode.com/technology-solutions/17021-parallel-wireless-to-provide-openran-solution-for-deployment-in-ghana> (visited 2020, November 23).

²³ Nigerian National Broadband Plan 2020-2025 Presidential Committee, *supra*, p. 76.

²⁴ <https://telecominfraproject.com/>.

²⁵ <https://www.o-ran.org/> .

²⁶ <https://o-ran-sc.org/> .

²⁷ <https://opennetworking.org/> .

²⁸ <https://www.smallcellforum.org/>.

²⁹ <https://www.openranpolicy.org/>.

accomplishing Pillar #7 of the National Digital Economy Policy and Strategy including to “*promote research in emerging technologies with a view to getting digital technology to improve the livelihood of Nigerians*” through “*support[ing] the emergence of new services and industries that are enabled by emerging technologies*”.

The implementation of this recommendation will serve to establish Nigeria as a regional hub for the acceleration of Open RAN innovation in Africa, in the same manner as the Global Open RAN Center of Excellence established by NEC in the UK on 19 November 2020.³⁰

Conclusion

Open and interoperable RAN technologies have the potential to accelerate the growth of 5G in Nigeria. According to Santiago Tenorio Sanz, Head of Group Network Architecture at Vodafone and Chairman of TIP, Open RAN has massive long-term implications for mission critical, private LTE and 5G networks, giving operators more options as they build out the next generation capabilities.³¹ Additionally, unlike legacy network technologies, 5G has a very huge potential for several vertical markets including logistics, energy, port operations, health care and cloud gaming, which are critical aspects within the digital economy that can complement Nigeria’s widescale deployment of broadband connectivity services, thereby leading to the attainment of full digital transformation in Nigeria, which according to the Honourable Minister of Communications and Digital Economy, can “*lead to creation of jobs, improved socio-economic development and sustained economic growth, amongst others*”.³²

The Federal Government of Nigeria should take advantage of the opportunities presented by Open RAN and design actionable policies that supports 5G deployment. It is my absolute conviction that the recommendations discussed in this submission can be built upon by the Federal Government of Nigeria and by extension the Commission to achieve this purpose, and implemented within the confines of existing laws in the manner described above. I remain committed to the development of the telecommunications sector in Nigeria and would be available to respond to any clarification the Commission may have with respect to this submission.

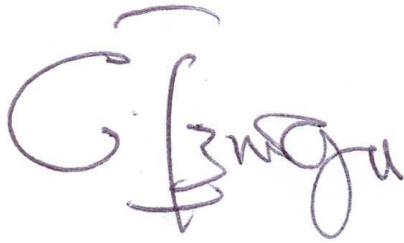
³⁰ NEC. (2020, November 19). ‘NEC establishes its Global Open RAN Center of Excellence in the U.K. to accelerate global adoption of 5G Open RAN’ [WWW document] URL https://www.nec.com/en/press/202011/global_20201119_03.html (visited 2020, November 23).

³¹ TelecomTV. 2020, November 17). ‘Accelerating Open RAN Innovation’ [WWW document] URL <https://www.youtube.com/watch?v=S8DIRJqOfNQ> (visited 2020, November 23).

³² Nigerian National Broadband Plan 2020-2025 Presidential Committee, *supra*, p. 6.

Please be assured of my highest consideration.

Yours faithfully

A handwritten signature in purple ink, appearing to read 'Chukwuyere Ebere Izuogu'. The signature is stylized with a large 'C' and 'I' at the beginning, followed by 'Zuogu'.

Chukwuyere Ebere Izuogu