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31 January 2020

Mr. Davis Kgosimolao Moshweunyane
Independent Communications Authority of South Africa
350 Witch-Hazel Avenue
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Via email: DMoshweunyane@icasa.org.za

Dear Mr Moshweunyane

**RE: TELKOM'S WRITTEN SUBMISSION ON THE AUTHORITY'S NOTICE ON
THE LICENING PROCESS FOR INTERNATIONAL MOBILE
TELECOMMUNICATIONS ("IMT") SPECTRUM**

Telkom SA SOC Ltd ("Telkom") welcomes the opportunity to provide written comments pertaining to the Independent Communications Authority of South Africa ("ICASA" or "the Authority")'s Notice on the Licensing Process for International Mobile Telecommunications ("IMT") Spectrum, inviting comments in respect of the provisioning of mobile broadband wireless open access services for urban and rural areas using the complimentary bands, IMT700, IMT800, IMT2300, IMT2600 and IMT3500 ("Information Memorandum" or "IM").

Please find herewith Telkom's written comments on the Information Memorandum.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Siyabonga Mahlangu', enclosed within a circular outline.

Siyabonga Mahlangu
Group Executive: Regulatory Affairs and Government Relations

Submission to the Independent Communications Authority of South Africa

Notice on the Licensing Process for International Mobile Telecommunications (“IMT”) Spectrum, Inviting Comments in respect of the Provisioning of Mobile Broadband Wireless Open Access Services for Urban and Rural Areas Using the Complimentary Bands, IMT700, IMT800, IMT2300, IMT2600 and IMT3500

Government Gazette No. 42820 dated 01 November 2019

1. INTRODUCTION

1.1. The Independent Communications Authority of South Africa (“**ICASA**” or “**the Authority**”) has issued an invitation for comments on the Information Memorandum (“**IM**”) describing “... *the Authority’s intentions with regard to the licensing process for International Mobile Telecommunications spectrum pursuant to consideration of the Policy on High Demand Spectrum and Policy Direction on the Licensing of a Wireless Open Access Network...*”^{1,2}

1.2. In response to the invitation, Telkom makes the submission contained herein. The submission is structured as follows:

(i) Executive summary and background

Under this heading, Telkom sets out a summary of the submission and discusses the background to the issuing of the IM.

(ii) Relevant legal and policy frameworks (Part 1)

Under this heading, Telkom sets out the relevant legal and policy frameworks that the Authority must consider when licensing spectrum. We also consider the policy documents and other regulatory activities that are relevant to the spectrum licensing process.

(iii) Telkom’s evaluation of the IM (Part 2)

Under this heading, Telkom provides an overall critique of the proposals in the IM.

(iv) Telkom’s Proposals (Part 3)

Under this heading, Telkom discusses and sets out its proposals in the light of the relevant legal and policy framework; other regulatory activities, competition, and other relevant considerations.

(v) Conclusion (Part 4)

¹ Government Gazette, Notice on the Licensing Process for International Mobile Telecommunications Spectrum, Inviting Comments in respect of the Provisioning of Mobile Broadband Wireless Open Access Services for Urban and Rural Areas Using the Complimentary Bands, IMT700, IMT800, IMT2300, IMT2600 and IMT3500, Government Gazette No 42820, November 2019, paragraph 1

² Note that the term “high demand spectrum” is used differently in different policy documents

2. EXECUTIVE SUMMARY

Addressing the structural problems with the mobile market should be at the centre of the Authority's proposal for the spectrum licensing process

- 2.1. There are significant and enduring structural problems with the mobile market in South Africa which are informed by various factors. These include asymmetrical termination rates and the first mover advantage, both of which favoured the entrenchment of the mobile duopoly. The result is a lack of effective competition, which adversely affects customers but has broader implications for the South African economy.
- 2.2. The central importance of addressing these structural problems is reflected in government policy for the sector. A core theme running through the 2012 National Development Plan ("the 2012 NDP"),³ SA Connect,⁴ the 2016 Integrated ICT Policy⁵ and the 2019 Ministerial Policy and Policy Direction⁶ is a recognition of the role of competition in delivering policy objectives and the importance of making the mobile market more competitive.
- 2.3. The significance of competition – and the long-term structural problems in the mobile market – have also been identified in recent regulatory inquiries. The Competition Commission's Data Services Market Inquiry ("DSMI")⁷ in 2019 and the Authority's ongoing Mobile Broadband Services Inquiry ("MBSI") have both established that competition is not effective in the South African mobile market. It has remained highly concentrated over many years, despite the entry of Cell C, Telkom and other operators. The DSMI has found that the dominant operators, MTN and Vodacom, did not face effective constraints from the smaller operators and that price-based competition was ineffective. The MBSI found that MTN and Vodacom were dominant in a range of markets. Both inquiries determined that MTN and Vodacom had various structural advantages that meant that the firms were able to maintain their dominant positions.
- 2.4. In this context, the Authority needs to ensure that it focuses on promotion of competition across the full range of its regulatory processes. The Authority needs to consider these processes holistically and ensure a coherent regulatory strategy that supports more competition.
- 2.5. The spectrum licensing process is one of these decisions - one which will have long-lasting effects on the mobile market in South Africa. Spectrum is a vital input for mobile network operators ("MNOs") - without it, operators cannot compete at the infrastructure

³ National Planning Commission, The National Development Plan 2030: Our future – make it work, 2012

⁴ Government Gazette, South Africa Connect: Creating Opportunities, Ensuring Inclusion (South Africa's Broadband Policy), Government Gazette No 37199, December 2013

⁵ Government Gazette, National Integrated ICT Policy White Paper, Government Gazette No 40325, October 2016

⁶ Government Gazette, Policy on High Demand Spectrum, Gazette No 42597, July 2019

⁷ The DSMI concluded in December 2019

/ wholesale level. The spectrum licensing process is therefore a once-in-a-generation opportunity to promote competition in the mobile market. If successful, it will boost investment, productivity growth and the competitiveness of the South African economy as whole. On the other hand, if the spectrum licensing process results in the two largest operators further entrenching their market positions, they will boost their profits at the expense of customers and the national economy for many years to come.

- 2.6. Similarly, the Wireless Open Access Network (“**WOAN**”) is a key component of the sector policy framework and it reflects the government’s focus on strengthening competition in the mobile market. The WOAN is intended to address the fundamental structural problems in the South African mobile market, introducing effective competition at the wholesale level and reducing barriers to entry at the retail level. The Authority therefore needs to ensure the spectrum licensing process supports the establishment of the WOAN and ensures that it has sufficient spectrum to be commercially viable and to allow it to address its policy mandate of enabling competition.

Telkom’s assessment of the IM

- 2.7. In Telkom’s opinion, the IM is deficient in several important respects.
- 2.8. Firstly, the proposals contained in the IM **will not address the enduring structural problems in the mobile market** or strengthen competition. In fact, they will further entrench the dominance of MTN and Vodacom at all levels.
 - 2.8.1. There is no evaluation of the current state of the market, its structure or competitive dynamics or the role that current spectrum holdings play in sustaining it. In addition, the Authority fails to consider how changes in spectrum holdings could affect competition and market structure at the wholesale and retail level.
 - 2.8.2. The IM makes no attempt to rebalance the market. In particular, the IM does not consider the need to rebalance spectrum holdings below 1 GHz in order to make the market more competitive.
 - 2.8.3. The proposal to include spectrum in the 3.5 GHz band will allow Vodacom and MTN to establish an early lead in 5G services, which will be very difficult for other operators to compete with, further entrenching their market position for many years to come. The auctioning of the 3.5 GHz band will also fragment the spectrum, preventing the Authority from considering the appropriate spectrum allocations that will enable competition in the provision of 5G services.
 - 2.8.4. There is no detailed discussion of how the WOAN is expected to impact the market. The IM only states the policy objectives the WOAN is intended to

promote (e.g. services-based competition) and uses those to explain some of the proposed conditions to be placed on the WOAN.

- 2.8.5. The cost of coverage obligations will be disproportionately and substantially higher for smaller operators. This will significantly affect the ability of such operators to compete in the auction. It will also limit their ability to fund network investments, marketing, promotions, and to offer competitive prices. The coverage obligations proposed in the IM will therefore have the effect of reducing competition in the market, rather than enhancing it.
 - 2.8.6. The proposed auction format would allow the dominant operators to obtain large amounts of spectrum and is also likely to result in some bidders obtaining no spectrum at all. This will allow the dominant operators to further entrench their market positions and will do nothing to strengthen competition in the market.
 - 2.8.7. The proposed IM does not contain any substantive analysis or quantitative information as to the potential impact that the IM would have on the market including the impact on competition, customers, investments, employment, etc.
 - 2.8.8. In summary, the proposals contained in the IM fail to show that the Authority has addressed one of its primary objectives – to promote effective competition in the mobile market. On the contrary, the proposals outlined in the IM – if carried through to the licensing process – would further entrench the market position of the dominant operators and disadvantage the smaller operators.
- 2.9. Secondly, the IM **does not adequately take account of the relevant legal framework.**
- 2.9.1. The Authority has misconstrued what is required of them in terms of the objects of the Electronic Communications Act⁸ (“ECA”). In particular, there is no attempt to prioritise certain policy objectives over others or analyse trade-offs that may need to be made between competing objects of the ECA (e.g. whether the financial implications of the proposed coverage obligations reduce the scope for retail price reductions).
 - 2.9.2. It has failed to consider the impact that the WOAN could have on competition in the market.
 - 2.9.3. It failed to undertake either the feasibility study of the 2.3 GHz band or the study into the spectrum requirements of 5G services that the Minister requires

⁸ Electronic Communications Act (2005), as amended

the Authority to undertake.

- 2.9.4. The Authority also disregarded material facts in that it has failed to take account or consider the results of exercises such as the Competition Commission's DSMI, the Authority's own MBSI, etc.
- 2.10. Thirdly, the IM makes proposals to include **spectrum bands that should not be included in the auction**. The spectrum that the Authority is proposing to licence in the 2.3 GHz band should not be included, primarily because part of it is currently licensed to Telkom and is in use, but also because the Authority has previously committed to undertake a feasibility study for the band. The 3.5 GHz band is a 5G candidate band (or IMT-2020), and needs to be part of the 5G study that the Minister requires the Authority to undertake before the Minister issues a 5G policy. Furthermore, the current proposals for the 3.5 GHz spectrum risk fragmenting the band. The 700/800 MHz bands are currently not available for use by MNOs because they are being used for other purposes notably analogue and digital broadcasting services. The Authority should only auction this spectrum when it is available for use.
- 2.11. Fourthly, the IM proposes an **auction design that is fundamentally flawed**. The Authority's proposal to auction pre-packaged lots of different spectrum bands would be challenging to implement and has many drawbacks. Operators will be required to bid for spectrum that they do not need, and several potential bidders could fail to obtain any spectrum in the auction.
- 2.12. Fifthly, the IM proposes a **spectrum endowment to the WOAN that is likely to be inadequate**. The Authority appears to have based its assessment on the CSIR⁹ study, which is not an appropriate basis on which to determine the appropriate spectrum to be assigned to the WOAN. Despite the WOAN being a policy instrument to address enduring structural problems in the market, the CSIR study did not include economic considerations such as the WOAN's effect on competition.
- 2.13. Sixthly, the proposed **coverage obligations are commercially and technically very challenging**. Telkom estimates that the proposed obligation to provide 100% population coverage and 30Mbps cell-edge download speeds would require that each operator would need a very large increase in the number of base stations. This would be prohibitively expensive to meet, it would result in excessive infrastructure duplication, and would strongly disadvantage smaller MNOs in comparison to the dominant operators. The Authority's "Outside-In"¹⁰ approach to the coverage obligation is also illogical. The sub-1 GHz spectrum that is essential to providing rural coverage is not available for several years. The Outside-In obligation would therefore delay the use of 2.6 GHz in urban areas. The Outside-In approach is also disadvantageous to

⁹ Council for Scientific and Industrial Research

¹⁰ An "Outside-In" obligation requires an operator to rollout to rural areas before urban areas.

smaller operators.

- 2.14. Seventhly, several of the **proposals in relation to the WOAN are illogical or not well founded**. The IM requires licensees to have MVNOs operating on their networks. It is not feasible for MNOs to commit to this in the licensing process because it would depend on factors outside of their direct control. The IM also requires MNOs to commit to buying capacity on the WOAN. However, these offtake requirements have not been adequately clarified.

Telkom's proposals for the spectrum licensing process

- 2.15. In Telkom's view, the Authority should have started the IM by discussing the policy objectives that it is prioritising in the spectrum licensing process. This should have focused on the structural problems in the mobile market that it is attempting to address and the various trade-offs that it is facing in doing so. It should have further provided a rational and well-founded explanation of how its proposals support the establishment of the WOAN and how this is expected to support the broader policy objectives of promoting competition in the market. Telkom believes that the Authority needs to provide transparency around the IM process by doing a proper Regulatory Impact Assessment ("**RIA**"), which clearly indicates how the IM will support the policy objectives and how it would impact the different stakeholders, licensees, competitors, customers, etc.
- 2.16. Telkom makes the following alternative proposals to those contained in the IM:
- 2.17. **Proposal 1: Remove 700 MHz, 800 MHz, 2.3 GHz, and 3.5 GHz from the spectrum licensing process.** The 2.3 GHz band should not be auctioned as it is currently used by Telkom and a feasibility study for its future use needs to be undertaken. The 3.5 GHz band should not be auctioned because it needs to part of the 5G study that the Minister requires the Authority to undertake. The 700/800 MHz bands are currently not available because they are being used by broadcasters and other users. They should not be auctioned until they become available.
- 2.18. **Proposal 2: The Authority should set aside only 20 MHz of sub-1 GHz spectrum to the WOAN and 90 MHz of 2.6 GHz spectrum.** Sub-1 GHz is an extremely limited resource and the maximum possible amount of spectrum in these bands should be auctioned – once it is clear of other users – to allow operators to provide in-building and rural coverage. The WOAN needs at least 90 MHz of 2.6 GHz to be commercially viable.
- 2.19. **Proposal 3: The Authority should auction the spectrum via a generic SMRA auction.**¹¹ The auctioning of pre-packaged lots is unlikely to lead to an efficient spectrum allocation as operators are not able to gain access to their optimal spectrum

¹¹ Simultaneous Multi-Round Ascending

requirements. A generic SMRA auction allows operators to better gain access to the combination of spectrum that best suits their commercial requirements.

- 2.20. **Proposal 4: There should be separate caps on sub-1 GHz and 2.6 GHz.** Where the spectrum is auctioned under an SMRA format, spectrum caps should be put in place. When the 700/800 MHz auction is auctioned, operators should be limited to a total of 42 MHz of sub-1 GHz spectrum after the auction has ended. This will ensure that a sufficient number of operators will be able to access a minimum of 20 MHz of sub-1 GHz spectrum. Operators should be limited to obtaining a maximum of 40 MHz of the 2.6 GHz spectrum in the auction. This will prevent one operator from dominating the process.
- 2.21. **Proposal 5: Throughput and coverage obligations should be modified. The 100% coverage obligation should only apply to dominant operators. A lower coverage obligation of 80% should apply to non-dominant operators.** The throughput requirements of 30 Mbps cell-edge download and 15 Mbps average upload should be reduced to 30 Mbps average download and 5-10 Mbps average upload. The 100% coverage obligation should only apply to dominant operators. Other operators should only have an 80% coverage obligation. The Outside-In obligation should be removed in its entirety.
- 2.22. **Proposal 6: Remove the MVNO obligations.** The MVNO obligations imposed on prospective licensees are neither feasible nor necessary. Operators may offer MVNO services, but cannot guarantee that MVNOs will take them up.
- 2.23. **Proposal 7: Preferential access to facilities leasing should be limited to the WOAN¹².** There are already existing facilities leasing obligations on the industry, and the Authority has signalled in the MBSI its intention to revise these. However, the WOAN plays a special role in the mobile market and therefore should be given preferential access to the facilities of Vodacom and MTN, as dominant operators.
- 2.24. **Proposal 8: No seamless roaming requirement.** Traditional roaming agreements have been commercially agreed without regulatory intervention. Therefore, there is no need for the Authority to regulate this process by requiring operators to provide seamless roaming to the WOAN.
- 2.25. **Proposal 9: Clarity is needed on the approach to capacity offtake.** The Authority needs to further clarify how the 30% capacity offtake requirement on licensees will work in practice.
- 2.26. **Proposal 10: The Authority should set low reserve prices.** The Authority should set low reserve prices. This would be line with international best practice and would

¹² Note that the Authority discusses facilities leasing and regulated MVNO access under the heading of "Open Access obligations".

reduce the risk that spectrum is left unsold. Furthermore, the Authority's objective is not to maximise auction revenue but to ensure spectrum is licensed in an appropriate manner that will promote competition.

- 2.27. **Proposal 11: The WOAN process and the auction process should be undertaken sequentially.** Bidders' valuation of the auctioned spectrum will, in part, be dependent on the identity of the WOAN operator. Similarly, the assessment of the commercial viability of the WOAN will depend on how the spectrum to be auctioned is distributed between operators. It would be preferable if the spectrum licensing process and the WOAN licensing process were conducted sequentially rather than in parallel. The Authority should ensure that the spectrum licensing process is completed before the WOAN licensing application process is closed. Moreover, at the time of the issuance of the ITAs there needs to be a reasonable degree of clarity around the WOAN licensing process.
- 2.28. **Proposal 12: The Authority needs to undertake a Regulatory Impact Assessment.** The Authority's decisions will have a material impact on a range of stakeholders. As such, the Authority should undertake an RIA.

PART 1: RELEVANT LEGAL AND POLICY FRAMEWORK

3. RELEVANT LEGISLATION AND CASE LAW

- 3.1. In this section we set out the legislation and case law that relate to the process set out in the IM.
- 3.2. The ECA, section 2, states its primary object as being to provide for the regulation of electronic communications in the public interest. This primary object is to be achieved through a range of supplementary objectives. We consider that the most relevant of these include:¹³
 - 3.2.1. “ensure efficient use of the radio frequency spectrum” (sec 2(e)).
 - 3.2.2. “promote competition within the ICT sector” (sec 2(f)).
 - 3.2.3. “promote an environment of open, fair and non-discriminatory access to broadcasting services, electronic communication networks and to electronic communications services” (sec 2(g)).
 - 3.2.4. “ensure the provision of a variety of quality electronic communications services at reasonable prices” (sec 2(m)).
- 3.3. The Independent Communications Authority of South Africa Act¹⁴ (“ICASA Act”), has as one of its objects that the Authority achieve the objects contemplated in the “*underlying statutes*”, one of which is the ECA.
- 3.4. The following provisions of the ECA are relevant to the process set out in the IM:
 - 3.4.1. The Minister may make policies on, *inter alia*, radio frequency spectrum and the promotion of universal service and access.¹⁵ The Minister may issue policy directions to the Authority in relation to any matter within the Authority’s jurisdiction.¹⁶
 - 3.4.2. The Authority must consider the policies and policy directions made by the Minister.¹⁷ The Constitutional Court affirmed that the ECA imposes a duty on the Authority to give careful consideration to national policy and “*take it seriously*” when exercising its functions.¹⁸ When the Authority chooses to

¹³ Other objectives are set out in ECA, Sections 2(c), 2(d), 2(h), 2(n), 2(p), 2(z)

¹⁴ Independent Communications Authority of South Africa Act, 2000

¹⁵ ECA, Section 3(1)

¹⁶ ECA, Section 3(2)

¹⁷ ECA, Section 3(4).

¹⁸ *Electronic Media Network Limited and Others v e.tv (Pty) Limited and Others*, [2017] ZACC 17; 2017 (9) BCLR 1108 (CC), paragraph 30

depart from national policy, it must offer a full and substantial justification for its actions.

- 3.4.3. The Authority may license spectrum where demand exceeds supply, and in doing so must take account of the objects of the ECA.¹⁹
- 3.4.4. Chapters 7, 8 and 10 require the Authority to take an active role in promoting competition in the electronic communications sector.
 - 3.4.4.1. Chapter 7 (“Interconnection”) requires competing networks and network operators to ‘interconnect’, a regulatory intervention designed to promote competition, and without which, strong network effects may tend to promote a ‘winner takes all’ market outcome, (i.e. one dominant network).
 - 3.4.4.2. Chapter 8 (“*Electronic Communications Facilities Leasing*”) allows for competitors to gain access to each other’s physical network facilities under certain conditions and requires the Authority to publish relevant regulations, which it has done.²⁰
 - 3.4.4.3. Chapter 10 (“*Competition Matters*”) requires the Authority to identify markets where licensees have significant market power and to implement pro-competitive remedies accordingly.
- 3.5. In relation to the proposed Vodacom/Neotel merger, the High Court confirmed that the Authority has a duty to promote competition and found that the Authority’s decision to defer to the Competition Commission’s consideration of the impact of the proposed Vodacom/Neotel merger on competition was unlawful. The court said:

"I am of the view that ICASA had a statutory duty to also consider the issue of competition in order to promote the objects of the EC Act before a decision was taken. Put differently, the statutory obligation to promote competition within the ICT sector implies an obligation to also consider and take into account competition, which is part of the decision making process and cannot be delegated or deferred to another organ of state. ICASA's failure to do so and its decision to defer to the Competition Commission were both, in my view, wrong in law."²¹

¹⁹ ECA, Section 31(3)(a)

²⁰ Government Gazette, Electronic Communications Facilities Leasing Regulations, Government Gazette No 33252, May 2010

²¹ Fourie, H., L. Granville and N. Theron, 2018, “Regulatory ambiguity and policy uncertainty in South Africa’s telecommunications sector,” p15

- 3.6. In this case, the Competition Commission also:²²
- 3.6.1. expressed concerns over the competitive effects of Vodacom acquiring control of Neotel's spectrum. For example, the concern that Vodacom's already dominant market position would be strengthened by adding Neotel's spectrum to its own at the expense of competition between mobile operators.
 - 3.6.2. proposed a two-year moratorium on the use of that spectrum by Vodacom as a condition for approval of the merger.
- 3.7. In conclusion, it is clear that the Authority has a duty to promote competition when undertaking its regulatory activities including when licensing spectrum. The process outlined in the IM fails to fulfil this duty.

4. POLICY FRAMEWORK

- 4.1. In this section we first set out the relevant policy framework that has led to the Authority issuing the IM. We then set out the other relevant regulatory activities that should influence the Authority's decision making process in relation to the licensing of high demand spectrum.

Policy framework

- 4.2. Four key policy documents set out the objectives of ICT sector policy in South Africa and the underlying rationale for those objectives. These are:
- 4.2.1. The 2012 NDP
 - 4.2.2. SA Connect
 - 4.2.3. The 2016 Integrated ICT Policy
 - 4.2.4. The 2019 Ministerial Policy and Policy Direction
- 4.3. These four policy documents build on one another. The 2012 NDP sets the overall strategic vision for South Africa. SA Connect then sets out a high level broadband strategy that supports some of the objectives set out in the 2012 NDP. The 2016 Integrated ICT Policy then makes key policy recommendations that are intended to achieve the targets and objectives of SA Connect. It also proposes the creation of the WOAN. The 2019 Ministerial Policy and Policy Direction then gave specific directions in relation to the licensing of spectrum and the creation of a WOAN and modifies some

²² Fourie, Granville, Theron (2018)

of the policies set out in the 2016 Integrated ICT Policy.

- 4.4. The 2012 NDP aims to eliminate poverty and reduce inequality by 2030. It plans to do this through “*growing an inclusive economy*” and “*building capabilities*”.²³ The 2012 NDP acknowledged the important role of the ICT environment and one of the milestones of the plan was to make high-speed broadband universally available at competitive prices.²⁴ It advocated changing the regulatory framework so as to reduce prices.²⁵
- 4.5. SA Connect determined that broadband must be widely available and affordable, as well as setting out that skills development was needed to ensure broadband was used effectively and the economic potential of broadband be developed.²⁶
- 4.6. The 2016 Integrated ICT Policy set out a range of policy interventions that relate to the ICT sectors. Chapter 5 set out the policy proposals to achieve universal access. Chapter 6 assessed the impact of convergence on ensuring fair competition in the ICT sector. Chapter 9 introduced a revised spectrum policy, including the creation of the WOAN as a policy instrument to address competition in mobile markets.
- 4.7. The 2019 Ministerial Policy and Policy Direction provided a direction to the Authority in relation to the licensing of high demand spectrum and the creation of the WOAN and sought to modify the 2016 Integrated ICT Policy, particularly in regards to the licensing of spectrum in the 700 MHz, 800 MHz and 2600 MHz bands.
- 4.8. Across these documents, there are two clear themes that emerge. Firstly, that competition is vital in ensuring an effective ICT sector. The documents make proposals that stimulate competition and allow the Authority to regulate competition matters effectively. Secondly, that universal access is vital but there is currently under-provision of broadband services in South Africa.

Promotion of competition

- 4.9. The 2012 NDP listed the inability of the Authority to promote an open market as one of the key constraining factors that had affected rollout of networks. It proposed that there should be a review of the market structure in relation to mobile networks²⁷ and made clear that the state would seek to facilitate competition and private investment.
- 4.10. SA Connect had several policy decisions that related to enhancing competition:²⁸
 - 4.10.1. The Minister to consider the viability and impact of competition through the

²³ 2012 NDP, page 24
²⁴ 2012 NDP, page 34
²⁵ 2012 NDP, page 64
²⁶ SA Connect, page 3
²⁷ 2012 NDP, page 191
²⁸ SA Connect, page 56

creation of a multi-player wireless broadband network;

4.10.2. Review of institutional arrangements in order to be able to, *inter alia*, regulate competition;

4.10.3. Ministry to expedite a policy to release high demand spectrum in a way that ensures efficient use, wholesale access and fair competition.

4.11. SA Connect also proposed that the Minister consider the development of a wireless broadband access network that would minimise the costs of providing national wireless broadband coverage, and provide a neutral wholesale platform to facilitate retail competition.²⁹ It stated that the wireless broadband access network would be enabled through access to sufficient spectrum that would support new entrants and support competition, access to existing facilities, and cost-based access for service providers.³⁰

4.12. The 2016 Integrated ICT Policy placed “*innovation and competition*” as one of its twelve objectives:

“Innovation, fair competition and equitable treatment of all role players must be facilitated to ensure a range of quality services are available to end-users and audiences.”³¹

4.13. As part of this policy of promotion of competition, the 2016 Integrated ICT Policy proposed a new spectrum policy. One element of this was related to the licensing of spectrum to a WOAN. The policy required that the Authority set aside “*all currently unassigned high demand spectrum*” to the WOAN. The “high demand” spectrum included 700 MHz, 800 MHz, 2.6 GHz, and also included the bands designated at WRC-15 including 1.5 GHz, 3.3-3.4 GHz and the 3.5 GHz band.³²

- The 2019 Ministerial Policy and Policy Direction amends the 2016 Integrated ICT Policy by proposing that some of the 700 MHz, 800 MHz and 2.6 GHz be licensed to industry. It further states that the Authority must consider the assignment of spectrum in the 700 MHz, 800 MHz and 2600 MHz frequency bands to ensure preferential treatment of the WOAN.

4.14. The 2019 Ministerial Policy and Policy Direction sets out that the WOAN is:

“an important policy instrument to lower barriers to entry for smaller players. improve the ownership of the ICT sector by historically disadvantaged individuals and to promote service -based competition.

²⁹ SA Connect, page 43

³⁰ SA Connect, page 47

³¹ 2016 Integrated ICT Policy, page 20

³² 2016 Integrated ICT Policy, page 86

*The Authority should licence spectrum to the WOAN in a manner that enables it to fulfil its policy mandate and to thrive.*³³

- 4.15. It is therefore clear that the policy context within which this IM is issued, is one that clearly focuses on the promotion of competition and sees spectrum as a very important element of the policy and regulatory mix.

Universal access

- 4.16. The 2012 NDP considered that there was a need for a strategy for universal internet access with clear targets for monitoring and evaluation.³⁴
- 4.17. The importance of universal access was made clear in SA Connect through setting out that one of its “*guiding principles*” was “*universality*”.³⁵
- 4.18. The 2016 Integrated ICT Policy established that network rollout in South Africa was distorted by three factors. Firstly, that an ineffective regulatory regime has failed to address issues of market power. Secondly, there is a concentrated broadband infrastructure market. The concentrated market led to vertically integrated operators using infrastructure as a competitive advantage, rather than as a facility used to stimulate retail competition. Thirdly, high network costs and limited competition has resulted in high retail prices.³⁶
- 4.19. The 2016 Integrated ICT Policy proposed that spectrum licensees should have universal service obligations that are “*competitively neutral and non-discriminatory*” “*transparent*”, and with “*clear targets*”.³⁷

Key Directions in the 2019 Policy and Policy Directions

- 4.20. The 2019 Ministerial Policy and Policy Direction required that high demand spectrum not assigned to the WOAN should be assigned to ensure that various policy objectives are achieved. One of those policy objectives is to achieve universal access and universal service obligations in rural and under-serviced areas.³⁸
- 4.21. The 2019 Ministerial Policy and Policy Direction made clear directions in relation to:

³³ 2019 Ministerial Policy and Policy Direction, paragraph 3.1

³⁴ 2012 NDP, page 194

³⁵ SA Connect, page 17

³⁶ 2016 Integrated ICT Policy, page 62

³⁷ 2016 Integrated ICT Policy, page 80

³⁸ 2019 Ministerial Policy and Policy Direction, paragraph 2.1.4

- 4.21.1. Regulations and access in relation to the WOAN;
 - 4.21.2. Further study of spectrum requirements for 5G.
- 4.22. The 2019 Ministerial Policy and Policy Direction amended the 2016 Integrated ICT Policy by stating that some high demand spectrum³⁹ may be assigned to the WOAN with remaining spectrum assigned to ECNS licensees with both spectrum assignment processes commencing simultaneously.⁴⁰ The 2019 Ministerial Policy and Policy Direction states that the Authority must consider the assignment of 700 MHz, 800 MHz and 2.6 GHz “to ensure preferential treatment of the WOAN”.⁴¹
- 4.23. The 2019 Ministerial Policy and Policy Direction refers to the CSIR study that considered that the WOAN should be assigned a minimum of 115 MHz spectrum across the 700 MHz, 800 MHz and 2.6 GHz spectrum.⁴²
- 4.24. The 2019 Ministerial Policy and Policy Direction instructed the Authority to consider, *inter alia*, the following for the WOAN:⁴³
- 4.24.1. Universal service and access obligations;
 - 4.24.2. Immediate facilities leasing from radio frequency spectrum licenses and wholesale capacity from licensees assigned high demand spectrum;
 - 4.24.3. 30% minimum of national capacity procured from the WOAN to licensees assigned high demand spectrum;
 - 4.24.4. Imposing remedies on the WOAN to ensure effective service-based competition and performing effective regulatory oversight.
- 4.25. The Authority was also directed to investigate and report to the Minister on the spectrum requirements of 5G in bands lower than 6 GHz and the millimetre wave (“mmWV”) bands studied at the WRC-19. The assessment was, *inter alia*, to consider the implications of licensing of 5G bands on competition and the current structure of the mobile market. The Minister would then issue a separate policy direction on the 5G candidate bands.⁴⁴

³⁹ The 2019 Ministerial Policy and Policy Direction defines high demand spectrum as “spectrum where there is insufficient spectrum to accommodate demand”. See paragraph 1.1

⁴⁰ 2019 Ministerial Policy and Policy Direction, paragraph 2.1.2

⁴¹ 2019 Ministerial Policy and Policy Direction, paragraph 2.1.3

⁴² 2019 Ministerial Policy and Policy Direction, paragraph 1.5

⁴³ 2019 Ministerial Policy and Policy Direction, paragraph 3.5-3.6

⁴⁴ 2019 Ministerial Policy and Policy Direction, paragraph 3.7

5. OTHER RELEVANT REGULATORY PROCESSES

- 5.1. Over recent years three major regulatory processes have been undertaken in South Africa in relation to the telecommunications market:
- 5.1.1. The Authority's Priority Markets Inquiry
 - 5.1.2. The Authority's MBSI
 - 5.1.3. The Competition Commission's DSMI.
- 5.2. These exercises have investigated many aspects of the mobile market and have made recommendations on, among other things, spectrum licensing. In the following sections, we summarise the findings of these exercises and discuss their relevance for the IM and the spectrum licensing process.

Priority Markets Inquiry⁴⁵

- 5.3. The Authority's priority market inquiry considered the markets that should be subject to a further inquiry or review based on three main factors:
- 5.3.1. The extent of competition problems;
 - 5.3.2. The materiality of the market to government policy; and
 - 5.3.3. The size of the market and its potential importance in future (materiality to customers).
- 5.4. The inquiry focused on infrastructure and wholesale markets but included retail markets when it was apparent that pro-competitive interventions at the infrastructure or wholesale levels may be insufficient to remedy competition problems at the retail level.
- 5.5. The discussion document of this inquiry ("**the priority markets inquiry discussion**")⁴⁶ found the following concerning competition in the mobile segment of the market⁴⁷, and

⁴⁵ Government Gazette, Notice of intention to conduct an inquiry in terms of Section 4B of the Independent Communications Authority of South Africa Act of 2000 to identify priority markets in the electronic communications sector, Government Gazette No 40495, June 2017, page 144-151

⁴⁶ Government Gazette, Discussion Document to Identify Priority Markets in the Electronic Communications Sector, Government Gazette No 41446, February 2018

⁴⁷ the priority markets inquiry discussion, paragraphs. 111-154.

the final findings document (“**the priority markets inquiry final findings**”)⁴⁸ did not change these conclusions:

- 5.5.1. Wholesale markets in the mobile segment are highly concentrated, with only two operators capable of offering national roaming services, and four capable of offering wholesale services to MVNOs, but only one operator actively doing so. The wholesale market for mobile broadband is not competitive.
 - 5.5.2. Barriers to entry and expansion at the wholesale level are significant. Regulatory constraints and capital expenditure requirements are the two main such barriers, and these are particularly onerous for later entrants and smaller competitors.
 - 5.5.3. Regarding regulatory barriers, the inquiry noted that availability of spectrum and its distribution across competing operators can affect how the market develops and is structured. The inquiry specifically identified as a problem the fact that Telkom is the only network operator that has no sub-1 GHz frequency spectrum suitable for rural coverage. This forces Telkom to build a denser radio access network at higher costs than its rivals. The inquiry noted that this same problem was identified by the Competition Commission in its investigation of the Vodacom/Neotel merger.
 - 5.5.4. The retail market is concentrated and the retail market shares of the two largest operators (measured by subscribers), Vodacom and MTN, have proven durable over time. This is so despite entry of new mobile operators in 2001 (Cell C) and 2010 (8ta, now Telkom Mobile) and the introduction of cost-oriented voice termination rate regulation in 2014. The study noted that later entrants were able to offer lower voice prices after 2014, but that this made little difference to their retail market shares.
- 5.6. The priority markets inquiry discussion document proposed to prioritise only the infrastructure and wholesale markets in the mobile segment. In the end, the priority markets final findings elected to prioritise the entire value chain by including the retail market.
- 5.7. The priority markets inquiry discussion document also explained why the prioritisation of mobile was important to broader government policy.⁴⁹ Firstly, mobile broadband connections make up the majority of all internet connections in South Africa. Secondly,

⁴⁸ ICASA (2018), “Findings Document on priority markets inquiry into the telecommunications sector”. Available at <https://www.ellipsis.co.za/wp-content/uploads/2018/08/findings-document-priority-markets-inquiry.pdf> .

⁴⁹ Government Gazette, No 41446, 16th February 2018, paragraphs 156-166.

although 3G and 4G networks cover up to 99% of the population⁵⁰, less than 60% of South Africans have access to the internet through a mobile handset, suggesting a significant demand gap driven by affordability problems. Thirdly, increased broadband penetration is a key government policy objective documented in the 2012 NDP, SA Connect, and the 2016 Integrated ICT Policy. A more competitive mobile segment, which produces lower prices and better quality for broadband, is therefore clearly an important step towards achieving policy objectives concerning broadband penetration and usage.

Data Services Market Inquiry

- 5.8. The Competition Commission has also investigated competition problems in the telecommunications industry, and ways to remedy the problems.
- 5.9. The Competition Commission's final report from the DSMI⁵¹ confirms significant structural competition problems in the mobile segment. It states the following about high demand spectrum:
 - 5.9.1. Spectrum assignment is a major driver of operator costs, market structure, market dynamics, and market outcomes for consumers.⁵²
 - 5.9.2. High demand spectrum must be assigned urgently to relieve capacity constraints.⁵³
 - 5.9.3. However, the licensing of non-WOAN high demand spectrum must factor in effects on competition and must avoid entrenching the existing market structure (i.e. the large market shares accounted for by Vodacom and MTN).⁵⁴ This is largely because, without the strengthening of competition, any spectrum-related cost savings achieved by Vodacom or MTN are unlikely to be passed onto consumers in the form of lower prices (it is pointed out that Vodacom and MTN already have the lowest unit costs).⁵⁵
- 5.10. The provisional DSMI report expands on the spectrum and network cost points elsewhere by saying that:

⁵⁰ Specifically, the priority markets inquiry discussion document stated that Vodacom had achieved 99% 3G population coverage, and 77% LTE coverage; while MTN had achieved 95% 3G coverage and 60% LTE coverage. The time period is not specified.

⁵¹ Competition Commission (2019). "Data Services Market Inquiry: Final Report". Available at <https://www.ellipsis.co.za/wp-content/uploads/2019/12/Data-Service-Market-Inquiry-%E2%80%93-Final-Report.pdf>.

⁵² Final DSMI report, paragraph 470-471 and 480 including sub-paragraphs

⁵³ Final DSMI report, paragraph 470.

⁵⁴ Final DSMI report, paragraph 471 and 479.2.

⁵⁵ Final DSMI report, paragraph 482 including sub-paragraphs

“Historical spectrum assignments have made it difficult for later entrants to compete on an equal footing with incumbents. Telkom has not been assigned any spectrum below 1GHz. Until the 900 MHz band was extended internationally, Cell C had also not been assigned spectrum below 1GHz. The lack of sub-1GHz spectrum serves to raise the costs of network development of Cell C initially and Telkom in general since one needs to build more sites that are closer to one another.”⁵⁶

- 5.11. The final DSMI report did not disagree with the following contained in the provisional DSMI report^{57,58}

“[290] The Inquiry team is therefore of the view that the [spectrum] assignment process undertaken by ICASA needs to prioritise the achievement of an allocation [of spectrum] that enhances, or at very least preserves and does not undermine, competition amongst MNOs (and the WOAN).

[290.1] In this respect, ICASA should ensure the design of the allocation of HDS is not done to achieve other objectives, such as maximising revenues. Rather, ICASA should place competition as the primary objective driving design decisions, including the allocation reserved for the WOAN as discussed above.

[290.2] Putting competition at the forefront of design would affect the design of the different lots of spectrum available, taking into account the current allocations across MNOs, as well as the bidding mechanism. The appendix on spectrum (Appendix F below) provides a detailed discussion of some of the different approaches adopted in other jurisdictions designed to achieve different outcomes.

*[290.3] The Inquiry is also of the view that allocating more spectrum to MNOs with more subscribers is not sound and may merely serve to entrench any dominant positions in the market. As such, ICASA also needs to consider in its design whether a purely symmetrical approach continues to inform its spectrum policy, or if some asymmetry, including pro-competitive asymmetry, should be a factor in assignment.”
[Emphasis added]*

- 5.12. The final DSMI report confirms the above by stating that:

⁵⁶ Provisional DSMI report paragraph 396

⁵⁷ Competition Commission (2019). “Data Services Market Inquiry: Provisional Findings and Recommendations”. Available at <https://www.ellipsis.co.za/wp-content/uploads/2019/04/Data-Services-Inquiry-Provisional-Report.pdf>.

⁵⁸ Provisional DSMI report as per paragraph numbers cited

“the Provisional Report has argued that the allocation of additional spectrum should be premised primarily on enhancing competition over cost savings as this is the primary means for a reduction of prices. As such, a pro-competitive asymmetry that does not entrench the large operators’ dominant positions in the market but instead enables challenger networks and new entrants to be competitive is preferred. For clarity, the Provisional Report did not state that the larger operators get no additional spectrum, but rather that the challenger operators are assigned relatively more spectrum than the larger players in order to facilitate competition in the market. This would include an assignment to the WOAN if that is the policy direction.”⁵⁹

- 5.13. Finally, the provisional DSMI report made clear that a country’s approach to spectrum licensing ought to be informed by its policy objectives, and that spectrum licensing can be used to promote competition. It stated that:

“The overall approach to spectrum assignment is driven by a country’s objectives. In particular, the choice of approach to spectrum assignment is typically driven by policy considerations and the policy context more broadly, and therefore countries employ a range of spectrum assignment approaches ... The broader policy objectives naturally influence the specific objectives for spectrum assignment and how best to promote those objectives using the tools available (or the best combination thereof). Spectrum assignment decisions should naturally maximise the likelihood of achieving policymakers’ goals. As the ITU notes, ‘any effort to plan future use and economic valuation of the radio spectrum must start by formulating the national economic and social development targets that are to be achieved by spectrum assignments.’, and

“Thus when defining the approach to spectrum assignment and the ultimate use of spectrum, countries would naturally be guided by their economic and social development objectives. In most cases, ‘the primary goal of spectrum policy and spectrum auctions should be economic efficiency- that is, putting the spectrum to its best use’ ... As the ITU notes, economic efficiency in the distribution of spectrum is achieved when the spectrum is used to generate the maximum net benefits to society. In adopting an approach for assigning spectrum, it appears that governments can set out to achieve any one (or a combination) of a number of objectives such as promoting competition

⁵⁹ Final DSMI report, paragraph 479.2.

or more competitive outcomes, supporting social welfare, access or coverage goals, or generating government revenue.”⁶⁰

5.14. The final DSMI report concluded that the retail market is highly concentrated. The report stated that:

5.14.1. The retail market is concentrated with the two largest network operators accounting for over 70% of subscribers and over 80% of revenue in 2018.⁶¹ The wholesale market is even more concentrated because the two smaller networks are largely absent from it; in fact they purchase national roaming services from their two larger rivals in order to be able to offer customers a nationwide service.⁶²

5.14.2. The structure of the retail market has remained skewed towards the two largest operators regardless of the later entry by the two smaller infrastructure-based competitors and MVNOs.⁶³

5.14.3. The final DSMI report concluded that:

“In summary, as in the Provisional Report, the Competition Commission finds that the retail mobile market remains stubbornly concentrated. While Telkom has grown off a small base, there is little to suggest that the large players, and in particular Vodacom, are being competitively constrained by Telkom to any significant degree.”⁶⁴

5.15. The figure below shows the evolution of market shares by subscriber from 2012 to 2019 (at May).

⁶⁰ Provisional DSMI report, paragraph 1047-1048
⁶¹ Final DSMI report, paragraph 210 and figures 35-37.
⁶² Final DSMI report, paragraphs 24-27 and 604-609.
⁶³ Final DSMI report, paragraphs 211, 217, 295.
⁶⁴ Final DSMI report, paragraph 217.

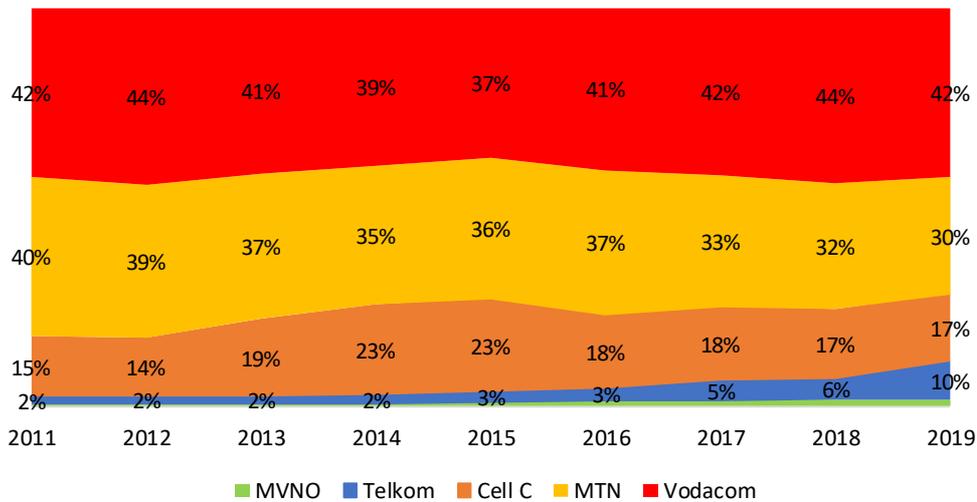


Figure 1: Retail mobile market share based on subscribers, 2012- May 2019

Source: Adapted from final DSMI report, figure 40.

5.16. The provisional and final DSMI reports reached the following conclusions on price competition:

5.16.1. The two smaller networks have charged significantly lower prices than their two larger rivals over a long period of time, but customer inertia had proven to be a significant barrier to expansion by the smaller networks, particularly among post-paid customers. The fact that smaller competitors tend to charge significantly lower prices for services than the two large operators has made little difference to the structure of the retail market.⁶⁵

5.16.2. The larger networks have some pricing power (i.e. they have found it profitable not to respond to lower prices set by smaller rivals) despite smaller rivals having invested in network development, marketing, and aggressive pricing strategies for data services, particularly in the post-paid segment and for larger data bundles in the pre-paid segment. The pricing gap applies to effective unit prices, suggesting that promotions and similar initiatives by larger operators do not overcome the gap seen in headline (advertised) prices.⁶⁶

5.17. The provisional DSMI report identified several features of the market that perpetuate the first mover advantages of the larger operators, and keep the retail market

⁶⁵ Final DSMI report, sections 4.3.3 and 4.3.4.

⁶⁶ Provisional DSMI report paragraph 449.2. See also Figures 41, 43, 44, and 46. These conclusions were not changed in the final DSMI report (see sections 4.3.3 and 4.3.4 of the final DSMI report); we reference the provisional DSMI report merely because the final DSMI report does not reflect all of the details of the analysis in the provisional DSMI report.

concentrated, despite the efforts of later entrants.⁶⁷

- 5.17.1. Smaller networks have not been able to compete on an equal footing with larger networks in the key area of network capital expenditure. The larger operators have always been significantly more profitable than later entrants due to the benefits of scale (reducing unit costs) and pricing power (increasing mark-ups), affording them the ability to expand, densify, and upgrade their networks (introduce new technologies) at a faster rate.
 - 5.17.2. Smaller operators must fund network capital expenditure on lower margins. This imposes limits on how aggressive smaller networks can be in their pricing before encountering financial difficulties such as unsustainable debt burdens. It also limits the speed at which they can expand and upgrade their networks.
 - 5.17.3. Other features of the market that have perpetuated the first mover advantages of the larger networks include customer inertia (particularly in post-paid), more favourable site locations (and an unwillingness to allow competitors to access them).
- 5.18. The final DSMI report concludes that first mover advantages including the ability to invest in network quality either did or continue to play a significant role in limiting the ability of smaller networks to constrain Vodacom and MTN, particularly as regards retail prices.⁶⁸
- 5.19. Chapter 5 of the provisional DSMI report also acknowledged the submissions of Telkom Mobile and Cell C in relation to low-frequency spectrum. They both showed that, for any given combination of coverage and quality requirements, it is considerably more expensive to build a network with only high-frequency spectrum. The provisional DSMI report appears to accept that this cost problem limits the ability of Telkom Mobile and Cell C to price their data services even more aggressively than they already do.⁶⁹ This was affirmed in the final DSMI report.⁷⁰

Mobile Broadband Services Inquiry

- 5.20. Following the priority markets inquiry, the Authority commenced a market inquiry into mobile broadband services.
- 5.21. On 29 November 2019, the Authority released the discussion document (draft findings) of the market inquiry into mobile broadband services (the “**Mobile broadband**

⁶⁷ Provisional DSMI report paragraphs 449.3 and 450.

⁶⁸ Final DSMI report, sections 4.3.3 and 4.3.4.

⁶⁹ Provisional interim report paragraph 267-270

⁷⁰ Final DSMI report, paragraphs 470-471 and 480 including sub-paragraphs

discussion document)⁷¹ The Authority has made no reference to, and therefore it does not appear that it had regard to, this process in the IM. This is notwithstanding the conclusions on spectrum reached in the mobile broadband discussion document, in particular, that:

5.21.1. The amount of spectrum assigned affects competition and price levels, underlining the need to assign more spectrum in South Africa.⁷²

5.21.2. Although Ofcom has found that asymmetric holdings of low-frequency spectrum need not necessarily harm competition, it nonetheless ensured that all MNOs without sub-1 GHz spectrum at the time of an 800 MHz auction managed to obtain some because of the imposition of spectrum caps in that auction.⁷³

5.21.3. The way in which new spectrum is assigned needs to be pro-competitive as it can have a significant impact on downstream competition.⁷⁴

5.21.4. Obtaining sub-1 GHz spectrum can lower the costs of operators that don't already have it.⁷⁵

5.22. The mobile broadband discussion document also found the following:

5.22.1. Vodacom and MTN possess significant market power in the retail market for mobile broadband as well as in wholesale markets, particularly the wholesale market for site access.⁷⁶

5.22.2. There is evidence to suggest that competition in the retail market is not effective, and that barriers to entry into the retail market are significant partly because wholesale services are not supplied competitively.⁷⁷

5.22.3. Pro-competitive licence conditions should be considered in the wholesale

⁷¹ ICASA, Discussion Document on the Market Inquiry into Mobile Broadband Services in South Africa, November 2019. Note that this document has no official Government Gazette number. Available at: <https://www.icasa.org.za/uploads/files/discussion-document-on-the-market-inquiry-into-mobile-broadband-services.pdf>

⁷² Mobile broadband discussion document, paragraphs 63-68.

⁷³ Mobile broadband discussion document, paragraph 87.

⁷⁴ Mobile broadband discussion document, paragraph 96.

⁷⁵ Mobile broadband discussion document, paragraphs 81, 89, 90, 93, 96.

⁷⁶ Mobile broadband discussion document, paragraph 1.3 including sub-paras; and sections 4.3, 6.3, 7.5.

⁷⁷ Mobile broadband discussion document, paragraph 1.3.1.

markets for site access and for national roaming.⁷⁸

6. CONCLUSION TO PART 1

- 6.1. The ECA and relevant case law makes clear that, *inter alia*, the Authority needs to carefully consider the issue of competition and universal access when it is performing its duties.
- 6.2. The 2012 NDP, SA Connect, 2016 Integrated ICT Policy and the 2019 Ministerial Policy and Policy Direction build on one another. The importance of the Authority considering and promoting competition is made clear across the four documents. In addition, the policy documents establish that the Authority must consider how to ensure universal service. It is also clear that spectrum licensing has a key role to play in achieving these aims.
- 6.3. The 2019 Ministerial Policy and Policy Directions give clear instructions on what the Authority needs to consider when licensing the high demand spectrum.
- 6.4. The Authority's Priority Markets Inquiry and MBSI, and the Competition Commission's DSMI all found that wholesale and mobile markets are highly concentrated and that there are structural issues that need to be addressed, including in relation to the licensing of spectrum.
- 6.5. These provide a very clear policy context within which the spectrum licensing process takes place. There is a clear and explicit objective to promote competition in the policy framework and the Authority is required to take this into consideration when undertaking critical regulatory processes such as spectrum licensing.
- 6.6. The recent market inquiries provide clear and unambiguous evidence that competition in the mobile market is not currently working effectively and they confirmed the importance of spectrum in addressing the structural problems.
- 6.7. This body of legislation, policy and regulatory evidence should have formed the foundation for the development of the spectrum licensing process. The Authority should also have taken into account the findings of the DSMI and MBSI processes which included enduring structural problems in the South African mobile market.

⁷⁸ Mobile broadband discussion document, paragraphs 1.3.3-1.3.4.

PART 2: TELKOM'S ASSESSMENT OF THE PROPOSALS IN THE INFORMATION MEMORANDUM

7. SUMMARY OF THE IM

- 7.1. The IM states that the main aim of licensing the relevant spectrum was to ensure nationwide broadband access for all citizens by 2020.⁷⁹
- 7.2. The key proposals in the IM are set out below.
 - 7.2.1. To assign the following spectrum: 700 MHz, 800 MHz, 2.3 GHz, 2.6 GHz, 3.5 GHz.⁸⁰ Some of this spectrum would be licensed to the WOAN, and the remainder auctioned.⁸¹
 - 7.2.2. To require licensees to provide an average upload speed of 15 Mbps and a minimum 30 Mbps download speed to 100% of the population by 2025.⁸² Licensees of lots B, C, and D are required to cover 97% of under-serviced areas before rolling out to other areas.⁸³
 - 7.2.3. Licensees to provide open access to a minimum of three MVNOs. Each MVNO must be 51% owned by Historically Disadvantaged Groups.⁸⁴
 - 7.2.4. Licensees who are assigned IMT spectrum must be subject to wireless open access obligations in relation to existing infrastructure and/or network facilities.⁸⁵
 - 7.2.5. Licensees for lots B, C, and D to provide access to any passive infrastructure that they own or operate to the WOAN on a cost-orientated basis and on reasonable terms. This would include access to base-station sites, towers, co-location facilities and other essentials.⁸⁶
 - 7.2.6. The WOAN to be given a 3-5 year regulatory holiday.⁸⁷ The WOAN to provide wholesale access to national roaming, MVNO, and mobile data services.⁸⁸ Wholesale access by the WOAN to be provided on non-discriminatory and

79 IM, paragraph 3.1
80 IM, paragraph 5.1
81 IM, section 5
82 IM, paragraph 6.1.2
83 IM, paragraph 6.2.1-6.2.4
84 IM, paragraph 6.3.1-6.3.2
85 IM, paragraph 6.3.6
86 IM, paragraph 6.4.8.1
87 IM, paragraph 6.4.5
88 IM, paragraph 6.4.6

transparent basis at affordable and cost-orientated prices.⁸⁹

- 7.2.7. Licensees to collectively take 30% of national capacity from the WOAN for a minimum period of five years.⁹⁰
- 7.2.8. Licensees for lots B, C, and D to provide seamless roaming to the WOAN.⁹¹
- 7.2.9. The authority intends to impose social obligations (universal service and access obligations) as it shall determine and invites stakeholders and prospective licensees to make recommendations and proposals on the “type, scope, nature, criteria, etc” of social obligations that can be imposed in respect of the licensing.⁹²
- 7.2.10. A licensee will be required to reach a level 3 contributor (B-BBEE status) in terms of the Codes of Good Practice applicable to the ICT Sector within 36 months of being granted a radio frequency spectrum licence, and to maintain such status for the period of the licence.⁹³

8. THE AUTHORITY HAS NOT TAKEN INTO ACCOUNT THE EFFECT OF ITS PROPOSALS ON COMPETITION

Importance of spectrum as an input

- 8.1. Spectrum is clearly an essential input in the provision of wholesale network services as well as retail services.⁹⁴ Without spectrum, MNOs cannot offer wholesale services and are instead classified as mobile virtual network operators (“**MVNOs**”). The presence of MVNOs will alter the competitive dynamics of the retail market, but they are unlikely to have as much of an impact on competition as vertically integrated MNOs. MVNOs have a lower ability to differentiate themselves because they have less control over how mobile data services are delivered. In contrast, MNOs can differentiate themselves more easily by, for example, changing the number of base stations, spectrum, and technology.
- 8.2. The Authority does not appear to have considered the potential effects on wholesale and retail competition of its proposed spectrum licensing process. The Authority simply

⁸⁹ IM, paragraph 6.4.7

⁹⁰ IM, paragraph 6.3.5

⁹¹ IM, paragraph 6.4.8.2

⁹² IM, paragraph 6.5.1-6.5.2

⁹³ IM, paragraph 7.5.2.3

⁹⁴ The Competition Commission in its assessment of the proposed Vodacom / Neotel merger described spectrum as an “essential input”. See Competition Commission, Mergers and Acquisition Report, case 2014Jul0382, paragraph 8

states its proposals in the IM, but does not document how it has assessed what the impact on competition might be of its proposed spectrum licensing process.

The mobile market is concentrated and various structural remedies need to be imposed

- 8.3. The advantages of the two larger operators are numerous and significant. They have more sites, far greater scale, more subscribers, higher mark-ups and profit margins, greater financial resources for capital expenditure on network (and spectrum), and access to low-frequency spectrum.⁹⁵ These advantages are structural in nature and will not likely diminish over time through the efforts of smaller operators alone.
- 8.4. The DSMI noted that the spectrum allocation process had an important role to play in improving competition in mobile markets. The spectrum licensing process will have a long-lasting impact on market structure and competition. This, in turn will have major implications for market outcomes such as price and quality, and consumer welfare.
- 8.5. The Authority cannot consider the spectrum licensing process in a vacuum. The Authority needs to address all the structural issues in the mobile markets so as to increase competition and improve market outcomes. The Authority must assign spectrum in a manner that is pro-competitive, but it must also ensure that it continues with the other regulatory processes that promote competition in the mobile market.

The Authority's proposals will favour the dominant operators and further entrench their market position, thereby reducing competition in the market

- 8.6. The IM contains several key proposals which will serve to entrench the incumbent MNOs' market position:
 - 8.6.1. Proposal to include 3.5 GHz spectrum in the auction. Liquid is the only operator to currently hold national 3.5 GHz spectrum. It recently announced a wholesale roaming service in the 3.5 GHz band.⁹⁶ We also understand that Vodacom will be able to utilise this capacity through an alleged roaming deal.⁹⁷ This, in itself, gives Vodacom an advantage in 5G and entrenches its position in the mobile market. If Vodacom were to attain additionally acquire its own 3.5 GHz spectrum, it would be able to obtain an unmatched advantage in the provision of 5G services, until other appropriate spectrum bands are made available.
 - 8.6.2. Coverage obligations. The larger operators have significantly more sites than the smaller operators. They will therefore find it significantly easier than the

⁹⁵ See Provisional DSMI report paragraphs 449.3 and 450 and Final DSMI report, sections 4.3.3 and 4.3.4.

⁹⁶ <https://www.liquidtelecom.com/news-events/news/liquid-telecom-to-launch-first-5g-wholesale-roaming-network-service-in-south-africa.html>

smaller operators to achieve the coverage obligations as set out in the IM. As such the coverage obligations are discriminatory against the smaller operators.

- 8.6.3. No caps on spectrum acquisition. The Authority does not appear to have seriously considered the need for caps in relation to the auctioning of spectrum. This is particularly relevant for the 2.3 GHz and 3.5 GHz bands which the Authority has proposed to auction via an SMRA. However, it would also be relevant to the other frequency bands if these were auctioned through a similar mechanism. Caps are a critical component of any auction, particularly one in such an unbalanced market as is the case in South Africa. If spectrum is auctioned without appropriate caps, the larger operators are likely to obtain substantially more spectrum which will further entrench their market dominance.
- 8.6.4. No proposal to redress the current unequal distribution of sub-1 GHz spectrum. Access to sub-1 GHz spectrum is vital in providing mobile broadband services, in particular in rural areas. Currently four operators have access to sub-1 GHz spectrum⁹⁸. The Authority must also consider the future availability of 2 x 5 MHz in the 900 MHz band following the proposed in band migration.⁹⁹ The IM does not address how to rebalance the holdings of sub-1 GHz spectrum in the auction.
- 8.6.5. Clearance of 700/800 MHz spectrum. The 700/800 MHz spectrum is not fully available and the plan for clearing the spectrum is not fully formed. Although the Authority proposed an “expedited” plan to clear the 700 MHz and 800 MHz frequency bands¹⁰⁰, the practicality of implementing and executing the proposed plan has not been proven and is also pending the outcome of the consultation process. As explained above, the use of 700/800 MHz spectrum will be central to the provision of rural mobile broadband coverage and the distribution of the spectrum will materially affect competition. Operators who already have access to sub-1 GHz spectrum – including Vodacom and MTN, the two largest operators in the market – will obtain access to cleared spectrum (i.e. the 2.6 GHz band) whereas the smaller challenger operators such as Telkom and the WOAN must wait for spectrum to be made available – further disadvantaging them and limiting their ability to compete.
- 8.6.6. No assessment of Vodacom’s and MTN’s relative financial position. Vodacom and MTN are significantly better financed than other operators. Both Vodacom and MTN may have the financial ability to outbid other operators purely for the

⁹⁸ Three in the 900 MHz band, one in the 850 MHz band

⁹⁹ Government Gazette, No 38640, 30 March 2015 (IMT900 Radio Frequency Spectrum Assignment Plan)

¹⁰⁰ Government Gazette, No 42887 dated 6 December 2019

purposes of distorting competition. The IM does not address this risk.

- 8.6.7. The IM does not consider the recently concluded or to be concluded roaming/infrastructure sharing agreements concluded by the dominant players (i.e. Vodacom and MTN) with smaller players, which has given them access to additional spectrum and entrench their dominance.

9. THE IM FAILS TO MEANINGFULLY ENGAGE WITH THE RELEVANT LEGAL AND POLICY FRAMEWORKS

- 9.1. In this section we set out that the Authority has not engaged with the relevant legal and policy frameworks.

Failure to engage with the relevant legal and policy framework

- 9.2. In determining how to assign spectrum the Authority must consider both relevant policy directions (including the 2016 Integrated ICT Policy and the 2019 Ministerial Policy and Policy Direction) as well as ensuring that it fulfils the objectives of the ECA.
- 9.3. The Authority only mentions the 2019 Ministerial Policy and Policy Direction, and does not refer to the 2016 Integrated ICT Policy. Furthermore, it does not set out how its proposals comply with the ECA and the ICASA Act.
- 9.4. The Authority does not fully identify which of the Government's policy objectives it is seeking to achieve through the spectrum licensing process, other than universal availability of broadband services. The Authority has therefore not identified which key Government objectives the IM will seek to achieve, and where there is a conflict between these, how it will address this.
- 9.5. The IM contains no discussion on weighing of the numerous policy objectives referred to. There is no prioritisation of policy objectives or trade-offs between the different objectives. There is further no consideration of how the different policy choices will impact on auction design choices, including the correct balance between the promotion of investment, rollout, and competition in order to achieve the objectives sought by the IM.

Failure to consider the impact of the WOAN

- 9.6. The concept of the WOAN¹⁰¹ is first introduced in SA Connect.¹⁰² In SA Connect, the Minister of Communications is required to consider the feasibility and

¹⁰¹ In SA Connect the WOAN is referred to as the "Open Access Wireless Network"

¹⁰² SA Connect, page 44-45.

operationalization of the network and the Authority is required to assign broadband spectrum in support of the policy.¹⁰³ In the 2016 Integrated ICT Policy the objectives of the WOAN is to:

“meet the public policy objectives such as lowering of the cost of communications, reducing last mile infrastructure duplication and encouraging service-based competition”¹⁰⁴

9.7. The 2019 Ministerial Policy and Policy Direction considers that:

“The WOAN is an important policy instrument to lower barriers to entry for smaller players. improve the ownership of the ICT sector by historically disadvantaged individuals and to promote service -based competition. The Authority should licence spectrum to the WOAN in a manner that enables it to fulfil its policy mandate and to thrive.”¹⁰⁵

9.8. The 2019 Ministerial Policy and Policy Direction states that in assigning the 700 MHz, 800 MHz, and 2.6 GHz spectrum that it must “ensure preferential treatment of the WOAN”.¹⁰⁶ The IM does not set out how whether this was considered and / or rejected, and reasons for such rejection. It further does not state how the proposed approach will result in “preferential treatment of the WOAN”. It also does not set out how it has achieved the policy objectives set out in paragraph 2.1.4 of the 2019 Ministerial Policy and Policy Direction.

Failure to undertake relevant studies

9.9. The 2019 Ministerial Policy and Policy Direction states that the Authority is required to undertake a study into the spectrum requirements of 5G and report back to the Minister. The Minister will then issue a separate policy in relation to the 5G spectrum.¹⁰⁷ The Authority has failed to undertake this study and has instead proposed licensing 3.5 GHz (currently a band in which 5G services have been deployed in other countries) in the auction.

9.10. The Authority issued the Radio Frequency Migration Plan 2019 on 29 March 2019.¹⁰⁸ Regarding the 2.3 GHz frequency band, the Authority decided that “A feasibility study is to be conducted”, which is to address the migration of the existing users from the band. Although the feasibility study has not yet been done as per the prescribed regulations, and although this spectrum is used by Telkom for fixed terrestrial services,

¹⁰³ SA Connect, table 3, page 45

¹⁰⁴ 2016 Integrated ICT Policy, page 71

¹⁰⁵ 2019 Ministerial Policy and Policy Direction, paragraph 3.1

¹⁰⁶ 2019 Ministerial Policy and Policy Direction, paragraph 2.1.3

¹⁰⁷ 2019 Ministerial Policy and Policy Direction, paragraph 3.7

¹⁰⁸ Government Gazette, Radio Frequency Migration Plan 2019, Government Gazette No 42337, March 2019

the Authority disregards its own regulations and proceeds on the basis that the band is available for licensing. Telkom also pays annual fees for the use of this spectrum.

Failure to take account of other ongoing regulatory processes

- 9.11. The Authority does not take account of other ongoing regulatory processes. The Authority's ongoing MBSI is clearly relevant in determining the Authority's approach to spectrum. The promotion of competition should be central to the Authority's approach to assigning spectrum. The MBSI does not even mention the IM process, and so also the IM process fails to mention the MBSI.
- 9.12. The Authority also appears not to have taken account of the DSMI. The IM does not reflect on the conclusions and recommendations of the Competition Commission's market inquiry. In particular:
- 9.12.1. That spectrum plays a key role in market outcomes for consumers.¹⁰⁹ Spectrum assignments affect competition and price levels.¹¹⁰
- 9.12.2. Licensing of spectrum to industry players must factor in effects on competition and must avoid entrenching the existing market structure.¹¹¹ The way in which new spectrum is assigned needs to be pro-competitive as it can have a significant impact on downstream competition.¹¹²
- 9.12.3. Vodacom and MTN have significant market power in retail and wholesale markets.¹¹³ Competition in the retail market is ineffective.¹¹⁴
- 9.13. As we explain above, the Authority needs to assign spectrum in a manner that promotes competition. However, the Authority also needs to use the other regulatory tools that it has at its disposal to improve competition.

Lack of a Regulatory Impact Assessment

- 9.14. The licensing of the WOAN and the auctioning of spectrum will have a profound effect on the nature of mobile competition over the next ten years and beyond. The spectrum licensing process will affect many different stakeholders. As such, the Authority should have undertaken an RIA.

¹⁰⁹ Final DSMI report, paragraph 470-471 and 480 including sub-paragraph

¹¹⁰ Mobile broadband discussion document, paragraphs 63-68.

¹¹¹ Final DSMI report, paragraph 470

¹¹² Mobile broadband discussion document, paragraph 96.

¹¹³ Mobile broadband discussion document, paragraph 1.3 including sub-paras; and sections 4.3, 6.3, 7.5.

¹¹⁴ Mobile broadband discussion document, paragraph 1.3.1.

10. SPECTRUM IN THE 2.3 GHz, 3.5 GHz, 700 MHz AND 800 MHz BANDS SHOULD NOT BE LICENSED AT THIS STAGE

10.1. In this section we set out our view that the IM was incorrect to include 2.3 GHz, 3.5 GHz and 700/800 MHz spectrum in the licensing process at this time.

Background – the importance of 5G

10.2. 5G is critical to the future economic development of South Africa. However, Government's overall approach to 5G has not been clearly defined. A national 5G strategy requires careful consideration due to its far reaching consequences for the successful implementation of the Internet of Things ("IoT") and mobile communication in general. The 2019 Ministerial Policy and Policy Direction did not discuss the role of 5G in South Africa's mobile markets. A key part of this is the strategy for the spectrum bands which are used to provide 5G services. The Authority has not published a national strategy for the applicable technology or the relevant spectrum bands.

10.3. The 2019 Ministerial Policy and Policy Direction makes it clear that the Authority needs to undertake a study on the spectrum requirements for 5G. In this study, it must consider all spectrum below 6 GHz and the millimetre bands that were studied at WRC-19.¹¹⁵

10.4. Key issues that should be included in this study should include the following:

10.4.1. Plans for future release of spectrum in bands that are best suited for 5G networks and services;

10.4.2. Plans for migration and clearance of these bands;

10.4.3. Channel sizes in the different bands that are required to ensure that operators can deliver 5G services with optimal performance in the most efficient way;

10.4.4. Competition and market structure for 5G, which are key considerations requested by the Minister in the 2019 Ministerial Policy and Policy Direction.¹¹⁶

10.5. This policy direction is very clear. The Authority is required to undertake this study before licensing spectrum in these bands because, failure to do so, would seriously jeopardise the future development of 5G in the country. By assigning spectrum in some 5G candidate bands without a clear strategy for how to license 5G-suitable spectrum as a whole, the Authority risks ending up with a very inefficient and ineffective distribution of spectrum, further entrenchment of the mobile duopoly and, as a result, a failure to achieve the full potential of 5G in South Africa.

¹¹⁵ 2019 Ministerial Policy and Policy Direction, paragraph 3.7

¹¹⁶ 2019 Ministerial Policy and Policy Direction, paragraph 3.7

Exclude 2.3 GHz from the auction

- 10.6. The Authority has included the 2.3 GHz spectrum for award in the auction. This is inappropriate for several reasons.
- 10.7. Firstly, the Authority is proposing to auction spectrum that is currently licensed to Telkom. The Authority is proposing to licence 2360-2400 MHz. However, Telkom is currently licensed to use 2360-2387 MHz in this spectrum band. Telkom is currently using this spectrum to provide services (mostly in rural areas), pays the relevant licence fees and cannot be simply removed from this band.
- 10.8. Secondly, the Authority cannot assign the 2.3 GHz spectrum without concluding the feasibility study that it said it would carry out. The Authority prescribed several Radio Frequency Spectrum Assignment Plans¹¹⁷ including IMT2300 for the frequency band 2300-2400 MHz¹¹⁸. According to the 2.3 GHz plan, “*The scope of new assignments in the IMT2300 band will be identified in a feasibility study to be carried out.*”¹¹⁹ It is also indicated that the migration of fixed and outside broadcast links out of this band are subject to the outcome of the prescribed feasibility study.¹²⁰ This feasibility study has not been done.

Exclude 3.5 GHz from the auction

- 10.9. The Authority has also inappropriately included the 3.5 GHz spectrum in the auction.
- 10.10. 5G is seldom deployed with less than 40 MHz of spectrum, although the GSMA recommends 80-100 MHz to fully realize the benefits of 5G. In order to accommodate 3 operators, with 100 MHz each, requires a 300 MHz band (as has been deployed in Saudi Arabia). Alternatively, multiple bands which would enable the same effect can be auctioned (as has occurred in China). The practical difficulty that the Authority has is that only 116 MHz of spectrum is available in the 3.5 GHz band in South Africa.
- 10.11. The current planned assignment of 116 MHz of spectrum in the 3.5 GHz will not be sufficient for operators to obtain the 80-100 MHz of spectrum that is likely to be necessary to offer full enhanced mobile broadband (“**eMBB**”) services that fully capitalise on the capabilities of 5G for more than one or two operators. The Authority needs to consider the role of 3.5 GHz within the wider context of available spectrum by assessing the usability of other spectrum bands such as 3.3-3.4 GHz, 3.6-3.8 GHz, and the 4.8-4.99 GHz bands.
- 10.12. The Authority has not given any due consideration to how the 3.5 GHz will likely be shared among winning operators in the auction. Without such consideration, operators

¹¹⁷ IM, paragraph 4.14

¹¹⁸ Radio Frequency Spectrum Allocation Plans

¹¹⁹ Section 8.1 of the IMT2300 Plan

¹²⁰ Section 10.1.3 of the IMT2300 Plan

may be effectively excluded from the 5G race due to either no, or inadequate spectrum holdings from which to launch 5G. Recently Rain announced it will launch 5G using 80 MHz, which it holds in the 3.7 GHz band. Winners of the 116 MHz in the 3.5 GHz band could conceivably be licensed 60, 50, 40 or 30 MHz and would be at an inferior position to challenge for 5G. The same holds true for Liquid with 56 MHz in 3.5 GHz putting them at a similar disadvantage. In contrast Telkom's 28 MHz holding in the 3.5 GHz is regional.

10.13. In view of these considerations, Telkom is of the view that the only way the Authority can proceed, which is competitively fair, is to ensure that each 5G network investor has sufficient and comparable holdings of mid-band 5G spectrum. As there is insufficient spectrum in 3.5 GHz band, the Authority will need to consider other bands, specifically:

10.13.1. The 100 MHz in the 3.3 GHz band;

10.13.2. The remaining 120 MHz in the 3.7 GHz band; and

10.13.3. The 190 MHz in the 4.8-4.99 GHz band.

10.14. To ensure balanced distribution of spectrum in these important bands, the Authority needs to investigate this issue in more detail through a 5G study, in accordance with the request of the Minister.

10.15. The recent alleged roaming deal between Vodacom and Liquid will give Vodacom a significant advantage in the provision of 5G services.¹²¹ The Vodacom / Liquid deal will further entrench Vodacom's dominant position and allow it to obtain a significant first-mover advantage in the provision of 5G services. In addition, the 80 MHz spectrum licensed to Rain in the 3.6-3.8 GHz band must also be considered in the assessment of the use of this frequency range for 5G. This band will also be considered for IMT at WRC-23.

Exclude 700 / 800 MHz from the auction

10.16. 700/800 MHz spectrum is currently not available for use by MNOs and there is significant uncertainty as to when it will become available.

10.17. This uncertainty creates significant issues for bidders. In attempting to value the spectrum, the uncertainty around its availability will make any modelling of the benefits of the 700/800 MHz spectrum (for example due to lower numbers of sites) more uncertain. Such uncertainty would be reflected in the bidding process.

10.18. The spectrum is much more likely to be assigned efficiently if some of this uncertainty

¹²¹ Liquid has access to 56MHz of spectrum in the 3.5 GHz band, whereas Telkom only has access to 28MHz and this spectrum is non-national.

could be removed. As such, the 700/800 MHz spectrum should not be included in the auction.

- 10.19. Notwithstanding this, if the Authority goes ahead with the auction of 700/800 MHz spectrum there should be no payment for the 700/800 MHz spectrum until it is made fully available to the licensees. Such an arrangement would give a clear incentive for Government to clear the spectrum.
- 10.20. It should be noted that, even where operators are not required to physically pay for the spectrum, they will still have to make a provision to pay as the auction will generate a firm commitment to pay. As such, any funds will be 'tied up' and cannot be invested in network infrastructure. This would be a significant financial cost for the winning bidders and this is therefore clearly a second-best option. The best option would be for the Authority to remove 700 MHz and 800 MHz from the auction until it is clear.

11. THE PROPOSED AUCTION DESIGN IS FUNDAMENTALLY FLAWED

- 11.1. The IM proposes that the available spectrum is auctioned under an SMRA format. The pre-packaged lots proposed by the Authority are similar in nature to the Authority's Information Memorandum of June 2015.
- 11.2. Although the Authority labels the auction as an SMRA, this is incorrect. It is conceivable that the 2.3 GHz and 3.5 GHz bands could follow an SMRA format, however, the IM appears to propose that the pre-packaged lots will be licensed through a separate auction process. Combining pre-packaged lots across 700/800 MHz and 2.6 GHz with generic lots across 2.3 GHz and 3.5 GHz would be very challenging and is not advisable.
- 11.3. In Telkom's opinion, the Authority must either conduct the entire auction in pre-packaged lots, or a generic SMRA.
- 11.4. The approach of auctioning pre-defined packages of spectrum across different lots, as proposed by the Authority, has several serious shortcomings:
 - 11.4.1. The pre-packaged lots combine spectrum that is not available (700/800 MHz) and spectrum that is available (2.6 GHz).
 - 11.4.2. It is unlikely that the packages of spectrum will suit all or any of the bidders. The outcome of the auction is therefore likely to be some bidders winning spectrum which they are unable to use efficiently.
 - 11.4.3. There are only a limited number of packages available and fewer than the number of current operators in the market. This approach would therefore

necessarily result in some bidders obtaining no spectrum at all from the process.

- 11.4.4. Auctioning spectrum in pre-packaged lots risks operators having to pay extremely high prices in the auction. Operators will have the binary option of obtaining no spectrum, or one of the pre-packaged lots. As such, a “bidding war” could result between operators leading to inflated prices. The Authority’s obligation is not to maximise the revenues raised from the auction, but to ensure an efficient allocation of spectrum.
 - 11.4.5. The approach of preparing pre-defined lots presupposes a specific industry structure. The Authority has not engaged in any discussion of such an industry structure and is therefore unable to explain the rationale for the pre-packaged lots.
- 11.5. A generic SMRA auction, on the other hand, has several key advantages as an auction design:
- 11.5.1. Generic SMRAs are the most common form of auction for spectrum and have been used many times by regulatory authorities in other countries. Generic SMRAs are generally seen as being transparent and tractable for participants and outside observers. They are one of the best methods for ensuring that bidders pay the full economic price for spectrum and that spectrum is assigned in the most economically and technically efficient way.
 - 11.5.2. Operators can bid on the spectrum that they wish, rather than specific packages that may not suit their needs.
 - 11.5.3. Operators can adjust demand as prices rise. The set of pre-packaged lots leads to an “all or nothing” outcome where an operator either receives a particular package of spectrum with between 30-50 MHz of 2.6 GHz or receives nothing. Conversely, in a generic SMRA, operators can adjust demand downwards as prices rise.
- 11.6. There are many examples of countries which have employed an SMRA auction in recent years. These include: Germany 2019, UK 2018, USA 2018/19. Italy 2018, Australia 2018.
- 11.7. There are alternative multi-round auction formats similar to an SMRA (e.g. “clock” auctions). However, an SMRA is preferred due to its price transparency for bidders. Unlike a clock auction, SMRA ensures all lots are sold, provided that prices exceed the reserve prices.
- 11.8. A generic format is preferred as it prevents operators employing spoiling tactics in their bidding by splitting the assignments of competitors into non-contiguous lots. A generic

SMRA with post-auction contiguous assignment (as per Germany 2019) is preferred.

- 11.9. In Telkom's view, the Authority's proposal for a dual-auction structure in which some spectrum is auctioned in the form of pre-packaged lots while other spectrum is auctioned through a generic SMRA is unworkable. We think the pre-packaged lot approach has fundamental flaws and should not be used to auction spectrum in South Africa.

12. THE IM PROPOSAL FOR SPECTRUM ASSIGNED TO THE WOAN IS INSUFFICIENT

- 12.1. The IM proposes that the WOAN receive 40-65 MHz of 2.6 GHz spectrum along with sub-1 GHz spectrum. We consider that this is insufficient to ensure that the WOAN is financially viable.

- 12.2. We understand that the proposed spectrum allocation to the WOAN was based on the CSIR study. The CSIR study is not an appropriate basis on which to determine the spectrum requirement for the WOAN:

12.2.1. The model averages requirement across high & low volume sites, instead of high volume sites only (under-estimates).

12.2.2. The model employs virtual sites, as opposed to actual sites, and hence doesn't account for cell-densification, common in mobile networks.

12.2.3. The model's mathematical modelling of coverage provides no assurances that the desired coverage will be attained. Real world planning employs the use of proper radio engineering tools.

12.2.4. A downlink activity factor of 2.5% is presumed, which is too low for LTE in our view.

12.2.5. The model doesn't differentiate between large and small cells, and assumes higher spectral efficiencies on average as a result thereof.

12.2.6. It cannot be validated whether a 10 Mbps average speed target, or a 5 Mbps busy hour speed was used. Neither value is aligned with the 30 Mbps speed target contained in the current IM.

12.2.7. The speeds and activity factors are not reconciled to a monthly average consumption. In our view, the 1GB average consumption is both too low, and appears to be inconsistent with the other parameters provided.

12.2.8. The model does not differentiate between sub-1 GHz spectrum and mid-band

spectrum.

- 12.3. Please find attached a detailed technical assessment of the CSIR study commissioned by Telkom and performed by Detecon Consulting. This assessment was submitted to the Department of Telecommunications and Postal Services as part of Telkom's written comments to the proposed Policy and Policy Directions to the Authority on licensing of unassigned high demand spectrum, as published in Government Gazette No. 41935 on 27 September 2018.
- 12.4. It is presumed that the WOAN will serve 20% of the "mobile market" within 2 years, which is unrealistically optimistic. In South Africa, Cell C's market share first exceeded 20% in 2013 after launching in 2001, and after 10 years, Telkom has a market share of only around 10%. This experience is also seen in other countries. In Malaysia, for example, after its 11th year, U-Mobile was at only around circa 17% retail market share.

13. THE COVERAGE OBLIGATIONS ARE NEITHER TECHNICALLY NOR COMMERCIALY FEASIBLE

Feasibility of coverage obligations

- 13.1. In South Africa, as in many countries, there are significant variations in population density. Urban and suburban areas have much higher population densities than semi-rural and rural areas. Consequently, it is possible to cover an urban area with a small cell (to limit the traffic catchment) whilst larger cells are required in rural areas as the population is both more sparsely populated and due to affordability constraints, consumes less.
- 13.2. For a given MHz of spectrum, the demands of urban areas can be met using mid bands (1-6 GHz) while rural areas are optimally served using low bands (sub-1 GHz). Using mid-range spectrum in rural areas, requires more cells to be built which results in higher costs.
- 13.3. Even with sub-1 GHz spectrum, cell-sizes are still finite, and are limited by terrain, which may break up and degrade the signals. The cost of coverage therefore increases rapidly as population coverage reaches 100%.
- 13.4. Additionally, South Africa hosts the Square Kilometre Array ("SKA") radio astronomy telescope in the Northern Cape province. There is a large mobile radio black-out zone, which has been declared through the Astronomy Geographic Advantage (AGA) Act of 2007. Although people reside in these areas, the AGA Act prohibits the use of mobile signals to prevent interference with the sensitive radio telescope. Although some frequency bands may be used within the declared areas, not all IMT bands have been exempted.

- 13.5. Exacerbating the cost of rural coverage in South Africa is the lack of on-grid electricity in many parts of the country – only 80% of rural areas in South Africa have access to on-grid electricity.¹²² Off-grid mobile towers, which require alternative sources of power, have significant higher operating costs. This further raises the cost of extending mobile coverage to the final few percentage points of the population.
- 13.6. South Africa is not comparable to South Korea and Singapore (mentioned in paragraph 6.1.1 of the IM) because of a different population density profile. In South Africa:
- 13.6.1. 96% of population lives on just 4% of the land area,
 - 13.6.2. 4% of population live on 38% of the land area and
 - 13.6.3. 58% of the area is unpopulated.
- 13.7. A study would be required to determine the cost curve that is relevant to South Africa. Whilst Telkom accepts that the Authority takes its target from SA Connect, the policy-making process was flawed in several respects, notably the lack of any mobile cost modelling. The Australian NBN Plan is an international case study on such cost modelling. There it was determined that mobile was a more appropriate technology than fibre from the 93rd population percentile, however only up to the 97th percentile. Thereafter satellite was identified as the most cost-effective technology.

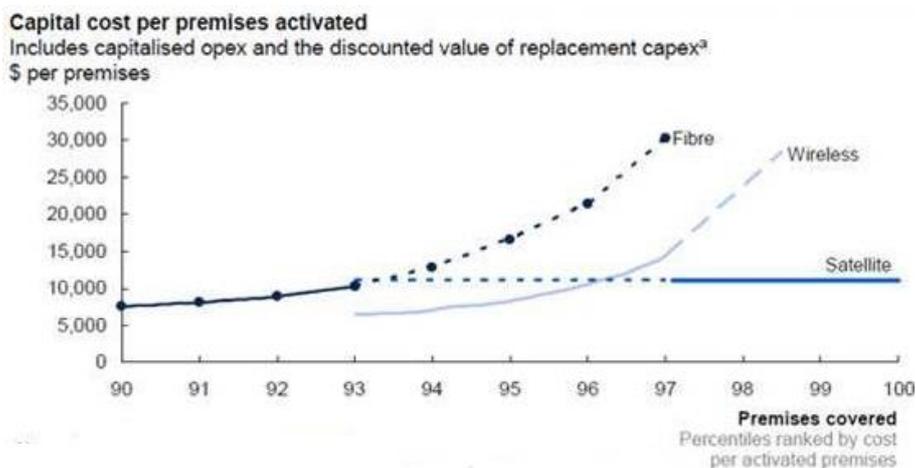


Figure 2: Original Australian NBN cost study
Source: Implementation study

- 13.8. South Africa is similar to Australia in terms of urban population and the ratio between urban land and uninhabited land. In South Africa, 4% of the population occupy 38% of the land. Extending coverage to 38% of the land for 4% population coverage is highly inefficient and will lead to higher costs on the mobile industry.

¹²² <https://www.iol.co.za/news/south-africa/eskom-expresses-pride-on-improved-access-to-electricity-17259230>

- 13.9. We suggest that the Authority, working in conjunction with other government institutions (e.g. CSIR, who carried out the fixed network modelling of SA Connect, and the WOAN Study), undertake a study to:
- 13.9.1. Determine rural or underserved areas;
 - 13.9.2. Establish the most cost effective technology to serve such communities.
- 13.10. If the obligation is interpreted as a roll-out target for each licensee, the 100% population coverage target for each licensee implies a multiplication of networks on 38% of South Africa's territory for just 4% of the population. It would mean that an area of 517,000 km² must be covered by at least 4 networks.
- 13.11. The Authority also needs to define how it will assess coverage. It is important to note that, internationally, coverage targets are usually defined as a requirement to provide a minimum signal strength, rather than as an absolute level of throughput.¹²³
- 13.12. In the event of a uniform coverage obligation on operators, Telkom submits that high coverage targets will tend to favour the larger operators for the following reasons:
- 13.12.1. Larger operators have a higher number of base stations than the smaller operators and as such will find it easier to meet coverage targets.
 - 13.12.2. Both large operators in South Africa have sub-1 GHz spectrum which Telkom doesn't have.
 - 13.12.3. The economics of extending coverage favour operators with larger retail market shares, as they will have more subscribers in rural areas to provide revenues, and a larger overall base of customers over which to distribute the costs of rural obligations.
- 13.13. The IM cites the German example of an Outside-In obligation where licensees were only permitted to roll-out in urban areas when sufficient rural coverage had been achieved.¹²⁴ The Authority has proposed that a similar obligation be placed on the winners of Lots B, C and D. Such an approach is inappropriate for several reasons:
- 13.13.1. Rural coverage will primarily be delivered using sub-1 GHz frequencies. As explained elsewhere, the availability of the 700 MHz and 800 MHz bands is unclear. An Outside-In obligation would effectively prohibit the use of 2.6 GHz

¹²³ The minimum signal strength is calculated by reference to the level of throughput required. However, a minimum signal strength is easier to objectively monitor as throughput performance can vary according to time of day, and also by the type of handset used.

¹²⁴ IM, paragraph 6.2.1

until the sub-1 GHz spectrum became available,

13.13.2. Operators with a larger number of cell sites will find it substantially easier to fulfil the Outside-In obligation than operators with a small number of cell sites, both in terms of the cost of deployment and the speed at which coverage targets can be achieved. Larger operators would be able to deploy their mid-band frequency spectrum before the smaller operators. Such an outcome would further entrench the position of the larger operators.

13.14. Telkom does not consider that it is appropriate to specify onerous coverage targets for the WOAN, as such will likely compromise its business case.

Feasibility of throughput obligations

13.15. Section 6.1.1 of the draft IM cites the "OpenSignal State of LTE report" (2018) that indicates that South Korea and Singapore are two countries that have a 97.5% and 84.4% 4G population coverage and average download speeds above 40 Mbps. It appears that this is the basis for section 6.1.2 of the IM which prescribes that,

"A Licensee must provide data services across the country with an average uplink of 15Mbit/s and the downlink user experience throughput of at least 30 Mbit/s to 100% of the population of South Africa by 2025."

13.16. Telkom would like to note that only 18 out of 88 countries in the OpenSignal study have achieved a download speed above 30 Mbps and none of the countries has achieved a 100% population coverage.

13.17. To provide the required level of throughput we estimate that an operator would need to increase its number of base stations by an order of magnitude. This would lead to a significant increase in both capital expenditure and operating costs.

13.18. The average download speeds in South Africa are around 10-11 Mbps for Telkom and Cell C, and 18-19 Mbps for MTN and Vodacom. MTN and Vodacom's 4G performance is significantly higher at around 25 Mbps, compared to around 14 Mbps for Telkom and Cell C. The 3G performance of the operators are similar as appears in Figure 3.

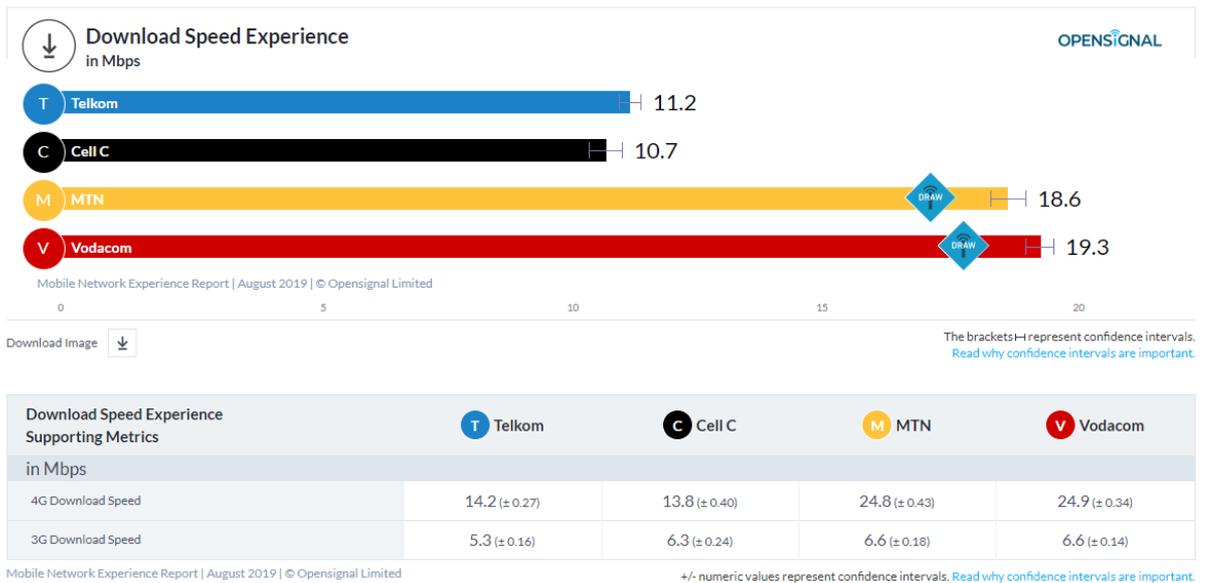


Figure 3: Per operator download speeds in South Africa

Source: Open Signal, August 2019¹²⁵

13.19. The variation in upload speeds between operators is similar, with Telkom and Cell C having upload speeds of around 3 Mbps, and MTN and Vodacom with upload speeds of 5-6 Mbps. Telkom notes that the upload speeds are around 25-30% of download speeds. Such a ratio is consistent with international norms, and far from the 50% ratio implied by the upload/download targets set out in the IM.¹²⁶

¹²⁵ <https://www.opensignal.com/reports/2019/08/southafrica/mobile-network-experience>
¹²⁶ In the UK, upload speeds were 25-35% of download speeds in October 2019. See <https://www.opensignal.com/reports/2019/october/uk/mobile-network-experience>

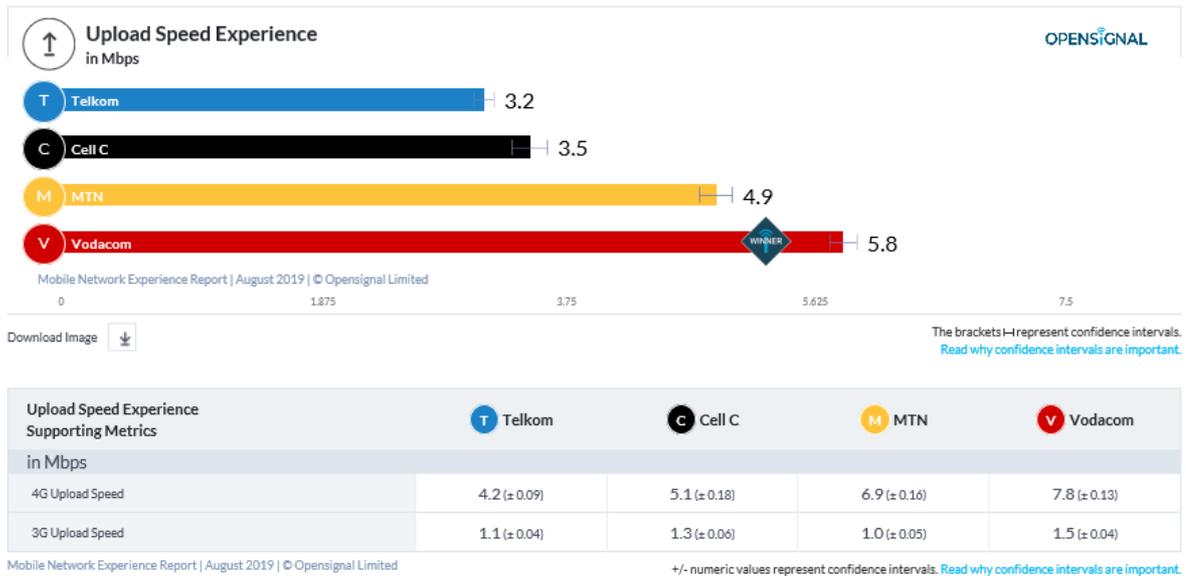


Figure 4: Per operator upload speeds in South Africa

Source: Open Signal, August 2019¹²⁷

- 13.20. MTN’s and Vodacom’s enhanced performance is likely to be driven by the greater cell density of the two larger operators. Smaller operators cannot afford to significantly expand their networks and enhance throughput and coverage.
- 13.21. Applying the same coverage targets to all licensees is unreasonable and it will have a discriminatory effect on the market. Operators with a higher number of existing cell sites will find it significantly easier to achieve the proposed coverage targets than smaller operators. The cost of complying with these coverage obligations is therefore much greater for the smaller operators.
- 13.22. The IM stipulates that the throughput to be achieved in the period 07:00 to 20:00, which has been chosen to cover the majority of the population using mobile data services in designated public areas.¹²⁸ As the throughput target in section 6.1.2 already asks for coverage in all populated areas this additional target most likely includes vast geographical uninhabited areas including roads, railways etc. Such an obligation may significantly influence the profitability and thus the value of the spectrum. Telkom therefore suggests to clearly specify these “designated” areas before the auction will take place. Telkom also recommends to re-think the throughput target to be achieved in such areas. “Mobile” usage while walking, cycling or driving typically has a much lower data demand than usage in fixed locations.
- 13.23. The IM requires that operators achieve coverage targets within three years of the 700/800 MHz being available to operators. This is an insufficient amount of time for

¹²⁷ <https://www.opensignal.com/reports/2019/08/southafrica/mobile-network-experience>
¹²⁸ IM, paragraph 6.2.4

the operators with smaller networks to meet the obligations.

- 13.24. In summary, the IM specifies a cell-edge minimum download speed of 30 Mbps. This obligation would be extremely costly for any operator in South Africa to meet but would be disproportionately so for the smaller operators.

14. FURTHER PROBLEMS WITH THE IM

- 14.1. In this section, we set out additional general issues and difficulties with the IM.

2.6 GHz channel plan

- 14.2. The 2.6 GHz channel plan¹²⁹ is based on an FDD¹³⁰ plan of 2 x 70 MHz. The channel plan for the TDD¹³¹ portion of the 2600 MHz band (50 MHz in middle of the FDD plan) has never been concluded. Telkom would encourage the Authority to expedite the conclusion of the channel plan.

Open access obligations on the industry (MVNO and WOAN offtake commitments)

- 14.3. The 2016 Integrated ICT Policy is predicated on the notion that Open Access is desirable as a means of reducing costs and lowering prices to customers. The IM adopts this approach in two ways: MVNO obligations and WOAN offtake commitments.
- 14.4. It proposes that all MNOs obtaining spectrum in this licensing process are required to sign contracts with at least three MVNOs.¹³² The MVNOs must have a minimum of 51% ownership held by persons from Historically Disadvantaged Groups and the licensee needs to start operations within 3 years from the date that the 700/800 MHz spectrum becomes available.
- 14.5. The approach of requiring MNOs to have at least three MVNOs is inconsistent with the Authority's strategy on the WOAN. The WOAN is a wholesale-only operator and a key part of its revenue will come from supplying services to MVNOs. Requiring MNOs to host MVNOs on their networks would therefore undermine the commercial viability of the WOAN.
- 14.6. MVNOs choose their host network operator. Currently Cell C, an MVNO enabler, hosts more than 10 MVNO's while MTN hosts two (to the best of Telkom's knowledge). It may become difficult to "force" MVNOs to choose Telkom as a host network, in particular, if the incumbent MNOs have a larger coverage based on their first mover

¹²⁹ Approved in Radio Frequency Spectrum Allocation Plans see IM, paragraph 2.6

¹³⁰ Frequency Division Duplex

¹³¹ Time Division Duplex

¹³² IM, paragraph 6.3

advantage and historically preferential spectrum possession. Accordingly, compliance with this obligation is likely to be more onerous on Telkom than MTN or Vodacom.

- 14.7. Under the heading of “Open Access Obligations for the Industry”¹³³ the IM notes the policy objective of open access. It also invites comments on whether any further open access obligations should be imposed on the industry. Separately in the IM, the Authority indicates its intention to impose open access conditions and physical infrastructure sharing obligations on licensees¹³⁴
- 14.8. In South Africa, mobile operators have engaged in facilities leasing agreements on commercial terms. The need to service the mobile market has led to investment by specialist firms (e.g. SA Tower, controlled by Helios Towers, and American Towers Corporation).
- 14.9. Facilities sharing regulations are already in place and the Authority is considering revising those as part of the Mobile Data Services Inquiry. It is therefore not necessary to impose these regulations as part of the spectrum assignment process.
- 14.10. An exception to this should be made for the WOAN. It will require access to facilities, and the Authority should ensure that dominant operators are required to give access to the WOAN at cost-orientated prices on reasonable terms.

WOAN obligations

- 14.11. As a wholesale operator, the WOAN is expected to provide roaming and some form of MVNO access. We expect that the specifications for this would be included in the WOAN licensing ITA along with other obligations such as rules around non-discrimination, transparency and pricing.
- 14.12. Telkom does not consider that any regulatory holiday for the WOAN, as proposed in the IM, is required. The WOAN’s wholesale prices should be reasonable. We are particularly concerned about this regulatory holiday when it is combined with the requirement that operators purchase capacity from the WOAN. Telkom does not support the notion of there being both a purchase commitment of capacity from the WOAN¹³⁵, while the WOAN is given a three to five-year holiday on regulatory obligations.¹³⁶ In the presence of a regulatory holiday there would be no control over the WOAN’s prices which Telkom and other operators would have to accept due to the purchase commitment to the WOAN. The costs incurred by Telkom would then have to be passed onto consumers in the form of higher prices.
- 14.13. Spectrum sharing (i.e. subletting or pooling by the WOAN) should be subject to

¹³³ IM, section 6.3

¹³⁴ IM, paragraph 6.4.4

¹³⁵ IM, paragraph 6.3.5

¹³⁶ IM, paragraph 6.4.5

regulatory approval. This will prevent opportunistic behaviour from the winners of the WOAN consortium, who acquire cheap spectrum and yet do not build a network with it but instead sublet the spectrum assets to existing mobile operators for a profit.

- 14.14. The Authority has not imposed roaming obligations on operators.¹³⁷ Until now, roaming has been agreed on commercial terms. We do not consider that the Authority should impose roaming obligations on operators as part of the spectrum licensing process except in relation to the WOAN, which should be supported in its development stages by obtaining access to roaming on preferential terms.

Timing of the award of spectrum and licensing of the WOAN

- 14.15. The potential licensees of the WOAN include existing network operators, albeit the WOAN would be a functionally separated entity. The valuation of the business case of the WOAN will at least be partially determined by the final spectrum licensed after the auction. Different operators will have different use cases for the WOAN depending on the number of subscribers, business model, spectrum holdings, and number of cell sites. The valuation of the WOAN therefore depends on the outcome of the auction. Similarly, an operator's bidding strategy in an auction may depend on the identity of the participants in the WOAN.

- 14.16. The Authority should therefore not run the spectrum licensing and the WOAN licensing processes simultaneously, but should do so sequentially. If the processes are executed simultaneously, it will create undue complexity and uncertainty in both processes and risk them failing.

Reserve prices

- 14.17. In mobile telecoms, the setting of reserve prices does not follow a consistent or formulaic approach internationally. The GSMA, in their report Spectrum Pricing in Developing Countries (2018), notes that:¹³⁸

“While very few governments prioritise the revenue maximisation objective with no other considerations, some countries have historically placed more focus on raising revenues than pursuing market efficiency and consumers’ interests. In fact, spectrum assignments are often seen as a simpler way to raise additional revenues than introducing or raising taxes.

¹³⁷ Although the Authority is considering such an obligations as part of the Mobile Broadband Services market review

¹³⁸ <https://www.gsmainelligence.com/research/?file=5a8f746015d3c1f72e5c8257e4a9829a&download>

Between 2010 and 2017, final spectrum prices in developing countries were on average more than three times those in developed countries once income per capita is taken into account. In addition to genuine market dynamics and other spectrum management policies, this is in part the result of aggressive reserve prices and high administrative fees, which are often driven by short-term public revenue maximisation objectives. These dynamics are not in evidence to the same extent in developed countries.”

- 14.18. Reserve prices are not meant to be a “minimum revenue target”, however administrators have often been lured into such thinking. This has led to failed auctions, which occurs when the spectrum auction fails to attract any bidders (e.g. Mozambique 2012. Five lots of 2 x 5 MHz in the 800 MHz band were auctioned with a reserve of US\$ 30m per lot. None of the operators, including Vodacom Mozambique, participated.
- 14.19. There are also examples of auctions where only the most profitable operator won spectrum:
- 14.19.1. Ghana 2015. Two lots of 2 x 10 MHz in 800 MHz band with a US\$ 67.5m reserve per lot. MTN Ghana was the sole winner after none of the three other Ghanaian companies met the reserve price.¹³⁹
- 14.19.2. Nigeria 2014. Fourteen lots of 2 x 5 MHz in 2.6 GHz with a US\$ 16m reserve per lot. MTN Nigeria was the only bidder and acquired 6 lots (2 x 30 MHz) with 8 lots (2 x 40 MHz) remaining unsold to this day.¹⁴⁰
- 14.20. It is self-evident that the result of an auction with only the strongest bidder winning has the effect of enhancing existing market dominance even further, as has indeed been the case with MTN Nigeria and MTN Ghana.
- 14.21. The GSMA has observed that in developing countries the final auction price achieved is often close to the reserve price, but also notes that auctions are treated as a revenue raising endeavour, and that the impact of such auctions is usually to retard or further skew a market.¹⁴¹ Telkom does not favour the approach of setting reserve prices close to likely final prices.
- 14.22. In contrast, the final prices attained in auctions in higher income countries are often many multiples of the reserve prices. For example:
- 14.22.1. UK, Ofcom 2.3 GHz and 3.4 GHz Auction (2018) – auction proceeds were 50

¹³⁹ <https://www.commsupdate.com/articles/2015/12/03/mtn-ghana-wins-spectrum-in-800mhz-band/>

¹⁴⁰ <https://www.thisdaylive.com/index.php/2016/10/20/the-untold-story-of-nccs-2-6ghz-spectrum-auction/>

¹⁴¹ <https://www.gsma.com/latinamerica/wp-content/uploads/2018/07/Spectrum-pricing-developing-countries.pdf>

times higher than the reserve prices

14.22.2. Germany, BundNetzA 2.1 GHz and 3.5 GHz Auction (2018) – auction proceeds were 63 times higher than reserve prices

14.22.3. USA, FCC 28 MHz Auction (2018/19) – auction proceeds were 200 times higher than reserve prices

14.23. Lots of similar economic value (i.e. same band, same technical configuration, same licence duration, same interference conditions, same licence obligations) should have the same reserve prices.

14.24. The lots are similar to the Authority's Information Memorandum of June 2015, which established a ZAR 3bn reserve price for all lots. Telkom expressed a view then, and maintains the view that given how pre-packaged lots were not economically similar, that the setting of similar reserve prices was erroneous in the circumstances.

14.25. If the Authority were to proceed with the pre-packaged lot design, Telkom recommends that reserve prices be set at 1/100th the expected value¹⁴² of the lots. The reserve price per lot can be set at the same value for the sake of simplicity in this case, as under such circumstances the reserve price should be a *de minimus* amount.

14.26. Similarly, in those bands where the Authority applies a SMRA auction, the reserve price should be set at 1/100th the expected revenue to be raised per lot. Different bands may have different reserve values, however these differences will likely be of no material consequence to the auction outcome.

License duration

14.27. The IM is silent on the licence duration that will be given for the new frequency bands licenced in the proposed auction. Telkom submits that the new spectrum should be licenced for a minimum of 15 years in line with international practice to allow the licensee to recoup its investment and provide certainty in the use of the licenced spectrum.

¹⁴² It is public record that the Authority has tendered for valuation of the spectrum bands up for auction.

PART 3: TELKOM'S ALTERNATIVE PROPOSALS

15. PROPOSAL 1: REMOVE 700MHz, 800 MHz, 2.3 GHz AND 3.5 GHz FROM THE SPECTRUM LICENSING PROCESS

15.1. As we set out in Part 2 of this response, the Authority has inappropriately included various spectrum bands in the auction process. The Authority should:

15.1.1. Exclude 2.3 GHz from the auction

15.1.2. Exclude 3.5 GHz from the auction

15.1.3. Exclude 700/800 MHz from the auction. If the Authority does include this spectrum in the auction, operators should only be required to pay for it when it is clearly available.

16. PROPOSAL 2: THE AUTHORITY SHOULD ASSIGN 20 MHz OF SUB-1 GHz SPECTRUM AND 90 MHz OF 2.6 GHz SPECTRUM TO THE WOAN

Assign 20 MHz of sub-1 GHz spectrum to the WOAN

16.1. Sub-1 GHz spectrum is an extremely limited resource. At higher frequencies, additional spectrum may be released over time, but for frequencies below 1 GHz, the only viable bands are the 700 MHz, 800 MHz, 850 MHz and 900 MHz bands.

16.2. Telkom does not agree with the proposal to assign 2 x 25 MHz of 800 MHz spectrum to the WOAN (under Option 1). Such an allocation is inefficient as there is 2 x 30 MHz of 800 MHz available.¹⁴³ The residual 2 x 5 MHz allocation would not be particularly useful to any other operator.

16.3. We consider that it is not necessary to assign 40 MHz of sub-1 GHz to the WOAN. This is for the following reasons.

16.3.1. As urban areas are more profitable and cheaper to serve than rural areas, Telkom's assumption is that the WOAN will build out in urban areas in the first few years of its operation to maximize the economic probability of success for the WOAN. The WOAN does not have any immediate requirement for low band spectrum as it will be focussing its rollout on urban areas.

16.3.2. It would deprive existing MNOs of sub-1 GHz, which would limit their ability to

¹⁴³ We understand that the CSIR had presumed that Liquid Telecom's c. 2 x 5 MHz assignment in the 800 MHz band would not be migrated, however the Authority's IMT Roadmap indicates Liquid's assignment will be migrated, which we regard as the definitive word on the matter.

provide essential services in rural areas.

- 16.3.3. It would harm competition because assigning this amount of spectrum to the WOAN effectively prohibits a 3rd operator (e.g. Telkom or Rain) from acquiring more than 2x10 MHz of the 700 / 800 MHz spectrum, and competing with Vodacom and MTN (who would have the equivalent of two blocks of 2 x 10 MHz given their 900 MHz spectrum holdings).
- 16.4. Telkom is therefore of the view that only 2x10 MHz of sub-1 GHz spectrum should be assigned to the WOAN.

Assign a minimum of 90 MHz of 2.6 GHz spectrum to the WOAN

- 16.5. In our view, it is not unreasonable that 110 MHz of spectrum in total be set aside for the WOAN in this auction:
- 16.5.1. There is a total of 290 MHz of spectrum available for auction in the 700 MHz, 800 MHz and 2.6 GHz bands. Assigning 110 MHz to the WOAN would result in it having 38% of the available spectrum. This would be consistent with comparable auctions in other countries in which caps of the amount of spectrum that can be obtained are often in the region of 38%.
- 16.5.2. Post the auction there will be approximately 888 MHz of assigned spectrum. For the WOAN to have 110 MHz or 12% of the spectrum in a 7-player market appears reasonable.
- 16.5.3. The WOAN will require sufficient high band spectrum in urban areas to have broadband speeds equal or superior to competing operators. 90 MHz is actually less than what several competitors may have in the high bands post auction.

17. PROPOSAL 3: THE AUTHORITY SHOULD AUCTION THE SPECTRUM VIA A GENERIC SMRA

- 17.1. In Part 2 of our response, we described why, in our view, the proposal in the IM to split the auction into two components (i.e. pre-packaged lots of spectrum in the 700/800 MHz and 2.6 GHz, bands but then a generic SMRA for spectrum in the 2.3 GHz and 3.5 GHz bands) is not appropriate.
- 17.2. The basic design of the auction will have a major effect on the outcome. The auction design should be one that:
- 17.2.1. Delivers an efficient outcome in which spectrum is licensed according to its

economic value;

- 17.2.2. Assigns spectrum in a way that supports the overall sector policy objectives;
 - 17.2.3. Is transparent and minimises the risk of any collusion or other unfair bidding practices.
- 17.3. As we explained in Part 2, we consider that it is not appropriate for the Authority to assign spectrum in the 2.3 GHz and 3.5 GHz bands until further studies have been undertaken, and that 700/800 MHz should not be included in the auction until it is made available on a national basis.
- 17.4. Whatever bands are included in the auction should be auctioned via a generic SMRA.
- 17.5. The Authority should also include several key technical parameters associated with an SMRA auction in its consultation. Such rules include, but are not limited to:
- 17.5.1. The ability and rules around switching (e.g. amount of times operators can switch between bands.)
 - 17.5.2. Generic or specific lot discussions. If generic lots are to be used factors such as the approach to assigning specific frequencies need to be determined. For example, will the specific frequency assignment be undertaken by the Authority or through an additional auction, and how will the issue of obtaining contiguous spectrum be addressed.
 - 17.5.3. Activity rules. This refers to the quantum of lots a bidder can place bids on given bids placed in the previous round. It is a key mechanism both for the efficient running of an auction and truthful bidding.
 - 17.5.4. Signalling rules (i.e. what is permissible behaviour and what constitutes collusion.
 - 17.5.5. Bid shaving (i.e. the ability of a bidder to either reduce its bid on a lot in subsequent rounds, if no-one else is bidding for a lot)
 - 17.5.6. Exit bids (i.e. the obligations of a bidder to honour a bid for a given reduction in activity, in the event that a bidder wishes to reduce aggregation risk)
- 17.6. Telkom is of the view that these rules would need to be specified in an ITA, and it is unfortunate that the Authority has chosen not to consult on issues that will be important for bidders.

18. PROPOSAL 4: THERE SHOULD BE SEPARATE CAPS ON SUB-1 GHz AND 2.6 GHz SPECTRUM

General principles in relation to caps

- 18.1. The IM invites stakeholders to make representations in relation to the “*factors and considerations that can inform the Authority’s formulation of radio frequency spectrum caps*”.¹⁴⁴ Telkom considers that the following factors should be included:
- 18.1.1. Asymmetry of holdings of sub-1 GHz spectrum. Sub-1 GHz spectrum has unique properties that make it ideally suited for rural and in-building coverage. To a greater or lesser extent higher-frequency bands can act as substitutes for one another. However, access to sub-1 GHz cannot be practically substituted by using high-frequency spectrum. As such, the Authority needs to ensure that no one operator has access to too much sub-1 GHz spectrum.
 - 18.1.2. Ability to dominate the auction. MTN and Vodacom have significant structural advantages compared to other operators. The caps need to be designed in such a way that neither MTN nor Vodacom can dominate the auction and win the majority of spectrum.

Total holdings cap of 42 MHz on sub-1 GHz spectrum

- 18.2. As set out above, we do not consider that the 700/800 MHz spectrum should be included in the auction. However, if it is included, there should be caps placed on total holdings of sub-1 GHz spectrum.
- 18.3. There are significant constraints on the availability of sub-1 GHz spectrum. It is therefore vital that no operator can obtain too much sub-1 GHz spectrum at the expense of other operators.
- 18.4. MTN, Vodacom, and Cell C all have existing sub-1 GHz spectrum holdings in the 900 MHz band and Liquid has sub-1 GHz spectrum in the 850 MHz band. While this existing spectrum is primarily used for 2G and 3G services with some 4G services, in the long-run operators will be able to deploy this spectrum for 4G and 5G services. As such these operators have a significant competitive advantage relative to other players.
- 18.5. Operators with existing sub-1 GHz spectrum should not be able to obtain so much new sub-1 GHz spectrum to prevent other operators from having the potential to gain access to the 700 MHz or 800 MHz bands.
- 18.6. As such, operators should not be able to hold more than 42 MHz of sub-1 GHz spectrum after the auction. This cap would permit operators with existing sub-1 GHz

¹⁴⁴ IM, paragraph 5.5

holdings to obtain 2x10 MHz (i.e. 20 MHz) of spectrum. The cap would prevent operators (particularly dominant operators) from taking too high a share of the sub-1 GHz spectrum and thus preventing other operators from obtaining access.

- 18.7. ICASA's IMT Roadmap¹⁴⁵ aims to reduce the guard bands between operators in the 900 MHz band and change the assignments to the operators currently operating in the band. Telkom understands this process will make available 2x5 MHz of spectrum in the band, presuming current operator holdings (2x11 MHz) are reduced. If this process completes before commencement of the auction, then the 42 MHz spectrum cap on sub-1 GHz spectrum should instead be set at 40 MHz.

Cap of 40 MHz on 2.6 GHz assigned to any one bidder in the auction

- 18.8. One operator should not be able to dominate the acquisition of the 2.6 GHz spectrum band. As such, a cap of 40 MHz should be placed on the total amount of 2.6 GHz that any one bidder can win in the auction. This will prevent operators from acquiring spectrum for the purposes of spectrum hoarding.

19. PROPOSAL 5: THROUGHPUT AND COVERAGE OBLIGATIONS SHOULD BE MODIFIED. THE 100% COVERAGE OBLIGATION SHOULD ONLY APPLY TO DOMINANT OPERATORS. A LOWER COVERAGE OBLIGATION OF 80% SHOULD APPLY TO NON-DOMINANT OPERATORS.

Throughput obligations

- 19.1. The download throughput obligation should be defined as an average of 30 Mbps and should be measured through crowd-sourced data. Users will, on average, obtain 30 Mbps, but will experience some variation around this figure.
- 19.2. The upload throughput should be set at an average 5-10 Mbps, which is more in line with international norms and current market realities in South Africa.
- 19.3. These throughput targets would be more in line with international norms for countries that are comparable to South Africa. They are also more likely to be commercially and technically feasible than the ones proposed in the IM.

Coverage obligations

- 19.4. We propose the following coverage obligations should be applied in the licensing process:
 - 19.4.1. The two dominant operators, MTN and Vodacom, if they win spectrum through this licensing process, should have an obligation to make services available to 100% of the population. There should be some exceptions to this 100% obligation in areas such as the SKA exclusion zone where it is not possible to achieve coverage for technical or legal reasons.
 - 19.4.2. For non-dominant operators that obtain spectrum through the licensing process, a lower coverage target of 80% population coverage should be imposed.
 - 19.4.3. Rural coverage is reliant on access to sub-1 GHz spectrum. Coverage obligations should therefore only apply to operators who have access to sub-1 GHz spectrum. As proposed in the IM, coverage obligations should only be applied once the 700/800 MHz spectrum is available for use by MNOs.
 - 19.4.4. Telkom and other mobile operators are already contributing to the universal service fund. By imposing additional coverage obligations on operators, the Authority is, in effect, imposing a further tax on operators who are already making substantial contributions. The Authority should consider the overall tax burden on the industry when undertaking the spectrum licensing process.

The Outside-In obligation

- 19.5. The specific Outside-In obligation proposed by the Authority is that operators must reach 97% coverage of underserved areas¹⁴⁶ before they may utilise the spectrum in other areas.
- 19.6. Telkom proposes that the Outside-In obligation should be removed in its entirety, for the following reasons.
- 19.6.1. The obligation is irrational in the South African context. The availability of 700/800 MHz is uncertain. The Outside-In obligation mean that 2.6 GHz spectrum cannot be utilised for a significant period until the 700/800 MHz spectrum is available.
- 19.6.2. The Outside-In obligation will impose costs on the industry. Operators will not be able to monetize their holdings of 2.6 GHz until after they have deployed to the under-served areas. Additionally, the Outside-In obligation imposes another constraint on operators' rollout plans, and operators may have to adopt a less efficient rollout strategy.
- 19.7. Furthermore, the Authority's German example does not illustrate that an Outside-In obligation would be appropriate in South Africa:
- 19.7.1. The German obligation was for a 1 Mbps obligation, not a 30 Mbps obligation.
- 19.7.2. There is ample evidence to suggest that such regulations were not vigorously followed by operators, nor enforced by Bundesnetzagentur as illustrated in the figure below. A comparison of LTE coverage by operators in Europe, found Germany in the bottom 1/3rd of the EU rankings. It therefore appears that the German Outside-In approach has not led to high levels of LTE coverage.
- 19.7.3. It is in fact widely acknowledged in Germany today that there remain problems with rural black-spots (lack of coverage). Consequently, there are plans for the German government to provide €1.1bn to build up to 5,000 new cell towers by 2024, bringing coverage up to 97.5% of the country's surface area. Simplified planning rules (in South Africa wayleaves and site building permits)

¹⁴⁶ Not listed or defined in the IM

are also being considered.

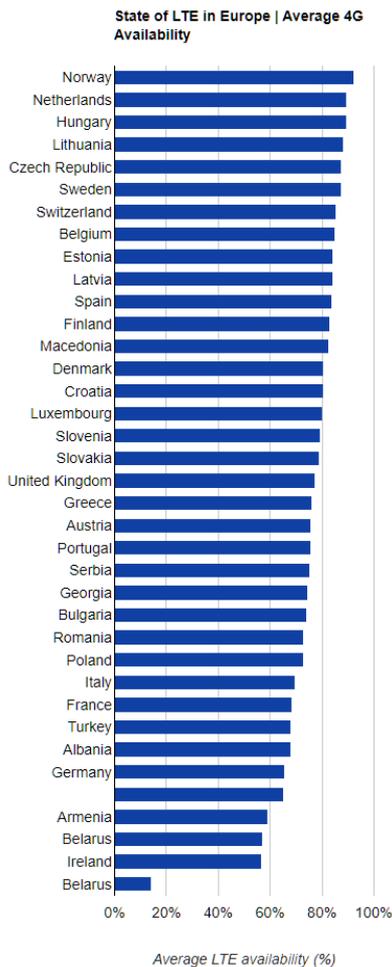


Figure 5: Comparison of LTE Coverage in Europe
Source: OpenSignal¹⁴⁷

19.8. Note that the IM invites stakeholders to make representations on the criteria for the identification of underserved areas.¹⁴⁸ Telkom considers that there is no need to identify underserved areas and therefore makes no response on this issue.

20. PROPOSAL 6: REMOVE THE MVNO OBLIGATIONS

20.1. In Part 2 of our response we described how it is not feasible for the licensees to meet the obligations in relation to MVNO access. We therefore propose that there are no obligations on licensees to provide MVNO access. If, however, the Authority decides to impose obligations related to MVNO access, we think that licensees should be obliged only to offer MVNOs access rather than mandating that licensees sign

¹⁴⁷ <https://www.opensignal.com/2018/02/20/europes-4g-speeds-rise-while-the-rest-of-the-world-stalls>

¹⁴⁸ IM, paragraph 6.2.3

agreements with MVNOs.

21. PROPOSAL 7: PREFERENTIAL ACCESS TO FACILITIES LEASING SHOULD BE LIMITED TO THE WOAN

- 21.1. Facilities leasing obligations already exist on operators and the Authority has indicated in the MBSI its intention to revise these.
- 21.2. The WOAN plays a special role in the mobile market and, in our view, the Authority should attempt support the commercial viability of the WOAN through this licensing process. As such, the WOAN should be given preferential access to the facilities of dominant operators.

22. PROPOSAL 8: NO SEAMLESS ROAMING REQUIREMENT

- 22.1. The Authority should not obligate licensees to provide seamless roaming. Any traditional roaming deals should be subject to commercial negotiations rather than the Authority dictating terms.

23. PROPOSAL 9: CLARITY IS NEEDED ON THE APPROACH TO CAPACITY OFFTAKE. OFFTAKE REQUIREMENTS SHOULD ONLY APPLY TO DOMINANT OPERATORS

- 23.1. Further clarity is required around these offtake provisions. Key areas that need clarifying include:
 - 23.1.1. The Authority needs to set out its approach to the inclusion or exclusion of roaming. Telkom considers that the collective capacity requirement of the industry refers only to the capacity of the WOAN using its own network, and that any roaming deals that the WOAN enters into, be excluded from the capacity requirements.
 - 23.1.2. The Authority also needs to consider whether the 30% offtake target is a national or regional target. The capacity available from the WOAN, and the demand from operators, will tend to vary across the country and will be different in rural and urban areas. How will the Authority address any potential mismatch between supply and demand?
- 23.2. In addition, the offtake requirements should not be imposed on non-dominant operators. The Authority has proposed that the WOAN should have a regulatory

holiday in relation to its pricing obligation. This regulatory holiday would leave non-dominant operators exposed to too much commercial risk.

24. PROPOSAL 10: THE AUTHORITY SHOULD SET LOW RESERVE PRICES

- 24.1. It is international best practice for reserve prices to be low. Typically, spectrum prices far exceed the reserve prices. However, the extent to which actual spectrum prices exceed the reserve prices will vary by band, and by country. The regulator is not in a position to be able to determine the relative benefits of different spectrum and hence cannot easily set the appropriate reserve prices.
- 24.2. High reserve prices lead to the risk of unsold lots, which would not be an efficient auction outcome. A further downside of high reserve prices is that firms may avoid lots with artificially high reserve prices and instead bid on their less preferred spectrum.
- 24.3. Furthermore, the purpose of an auction is not to maximise government revenues. If bidders are required to pay high spectrum prices this will ultimately be reflected in consumer prices. Although spectrum costs are sunk, and in theory should not influence future prices, in practice firms need to make a reasonable return on capital and higher spectrum prices will lead to higher prices.

25. PROPOSAL 11: THE WOAN ASSIGNMENT PROCESS AND THE AUCTION PROCESS SHOULD BE UNDERTAKEN SEQUENTIALLY

- 25.1. The WOAN process and the spectrum auction can commence simultaneously. The spectrum to be assigned in the auction will be dependent on how much spectrum is assigned to the WOAN and this should be known at the time of the spectrum ITA.
- 25.2. However, the valuation of spectrum to be auctioned and the commercial viability of the WOAN are interrelated. Specifically:
 - 25.2.1. Bidders' valuations of spectrum are likely to be affected by the identity of the WOAN.
 - 25.2.2. The assessment of the commercial viability of the WOAN, and hence whether operators wish to bid to become the WOAN, will depend on the spectrum holdings across the industry.
- 25.3. In relation to the first case, the commercial strategy of a WOAN owned by an MNO will be different from the commercial strategy of an entirely independently owned WOAN, even if the WOAN is structurally or functionally separate from the MNO. Bidders' valuation of spectrum will depend on the ability of a WOAN to deliver the capacity and

coverage that bidders require.

- 25.4. In relation to the second case, the commercial success of the WOAN will depend on the spectrum holdings across the industry. The spectrum holdings across the industry will determine the pattern of demand for WOAN services. Different spectrum holdings across the industry will lead to different demand for WOAN services.
- 25.5. Given that the WOAN valuation and the auctioned spectrum valuations are interrelated, the two processes should therefore occur sequentially.
- 25.6. In practical terms, the WOAN assignment process is likely to take longer than the spectrum auction. As such, the spectrum auction process needs to be concluded before the WOAN assignment process is concluded. At the time that the ITAs are issued, the proposals around the WOAN licensing process need to be clear but operators should not have had to make a firm proposal to the Authority in relation to the WOAN.
- 25.7. Telkom therefore recommends that, at the time of the auction, operators are not required to have made firm bids in relation to the WOAN.

26. PROPOSAL 12: THE AUTHORITY SHOULD UNDERTAKE A REGULATORY IMPACT ASSESSMENT

- 26.1. The licensing of the WOAN and the auction process will have a material impact on a range of stakeholders. As such, the Authority should undertake an RIA before concluding the process.

PART 4: CONCLUSION

27. CONCLUSION

- 27.1. The Authority must undertake its functions in line with the legal and policy framework. Under the requirements of the ECA, the Authority must, *inter alia*, consider the promotion of competition and universal access. The 2016 Integrated ICT Policy and the 2019 Ministerial Policy and Policy Direction both stress the importance of competition and the provision of universal access.
- 27.2. The mobile market in South Africa is highly concentrated and has remained so despite entry by Cell C and Telkom. The lack of effective competition in the mobile market leads to poor outcomes for consumers in the form of high prices and comparatively low network coverage.
- 27.3. The licensing of the WOAN and the auctioning of spectrum can play a vital role in increasing the competitiveness of mobile markets.
- 27.4. The IM has a range of problems, but a central one of these is that it fails to address the lack of competition in mobile markets and fundamentally fails to engage with the relevant legal and policy frameworks.
- 27.5. To amend this, we consider that the Authority needs to make a range of changes to the IM to create a more competitive market.

Appendix A: Glossary

The Authority	Independent Communications Authority of South Africa
CSIR	Council for Scientific and Industrial Research
DSMI	Data Services Market Inquiry
ECA	Electronic Communications Act
eMBB	Enhanced Mobile Broadband
FDD	Frequency Division Duplex
ICASA	Independent Communications Authority of South Africa
ICASA Act	The Independent Communications Authority of South Africa Act
IM	Information Memorandum
IMT	International Mobile Telecommunications
ITA	Invitation to Apply
mmWV	Millimetre wave
MNO	Mobile Network Operator
MBSI	Mobile Broadband Services Inquiry
MVNO	Mobile Virtual Network Operator
RIA	Regulatory Impact Assessment
SA Connect	South Africa Connect: Creating Opportunities, Ensuring Inclusion (South Africa's Broadband Policy)
SMRA	Simultaneous Multi Round Ascending
TDD	Time Division Duplex
The Authority	Wholesale Open Access Network Independent Communications Authority of South Africa
WOAN	Wireless Open Access Network
2012 NDP	National Development Plan 2030: Our future - make it work
2016 Integrated ICT Policy	National Integrated ICT Policy White Paper
2019 Ministerial Policy and Policy Direction	Policy on High Demand Spectrum

END OF SUBMISSION